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# AVIATION

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Underwood and Underwood

VOLUME XXI

NUMBER 9

## SPECIAL FEATURES

FINISH OF THE COMMERCIAL AIRPLANE RELIABILITY TOUR

NATIONAL AIR RACE MEET TO START SEPT. 4

THREE-ENGINE PLANES FOR AIR TRANSPORT

GARDNER PUBLISHING CO., Inc.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK
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# Air Cooled Fighters

"Wasp" leadership, established through improvement in basic design, has resulted in a new and broader application for radial air cooled engines.

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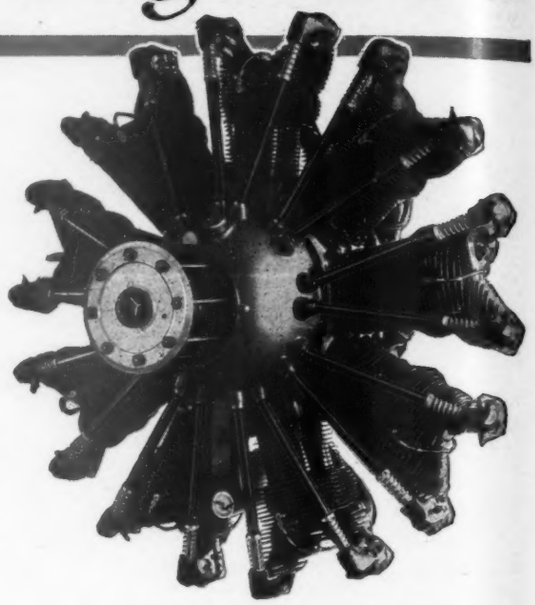

THE WASP
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*Wasp Engines are now flying in these Navy Fighters*

THE CURTISS HAWK

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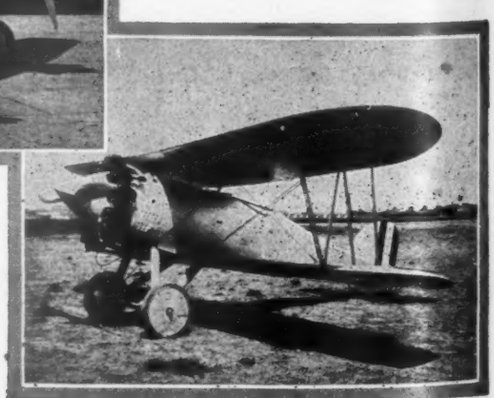

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PRATT & WHITNEY, U.S.A. DEPENDABLE ENGINES

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AUGUST 30, 1926

# AVIATION

VOL. XXI. NO. 9

*Published every Monday*

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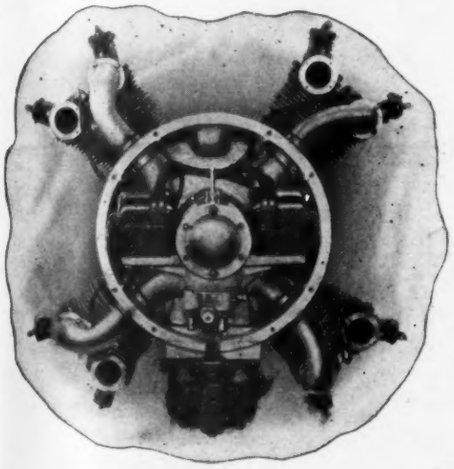
SCINTILLA



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# A PREDICTION REALIZED

# The New Curtiss "FALCON"

DURING the past several months, the first group of Curtiss "Falcons" to be delivered to the Army have been undergoing service tests in the hands of Air Corps pilots.

As was foreshadowed when the "Falcon" won first prize in the Observation Competition at McCook Field, this new observation airplane has rapidly gained favor with the flying personnel, who have found it much faster and more maneuverable than the present service type.

Powered with either the Curtiss D-12 or the Liberty motor; excellent from a maintenance standpoint; with a truly remarkable performance, the "Falcon" fulfills its advance indications of being the finest observation type in service today - a worthy "big brother" to the Curtiss "Hawk", the standard service pursuit plane of the U. S. Services.

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# AVIATION

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VOL. XXI AUGUST 30, 1926 NO. 9

## The Ford Trophy and Aerial Service

WHEN THE Pulitzer Trophy was offered as a prize to stimulate the development of better aircraft for war purposes, it was not believed by the donors that it would become the symbol of speed. It was given as an encouragement to aviation. The Edsel B. Ford Trophy may pass through a similar process before it finally is representative of a definite class of contest. Last year, the tendency appeared to have it a reward for better air transport development. But this year it has resolved itself into a demonstration of the reliability of planes which are more for aerial service purposes than for air transport.

This development of low priced reliable aerial service aircraft in the United States is perhaps the most significant aspect of American aviation. It is unique, as nowhere else in the world is there anything like it. Other countries have produced many types of airplanes for air transport purposes and have used old types of military planes for such aerial service as there is abroad. Here, commercial aviation has become sharply divided into the two classes.

The second annual Commercial Reliability Tour has served an excellent purpose in stimulating the production of many types of airplanes for aerial service. The public has come to regard the air transport branch of aviation as the most important, but a careful study of the innumerable possibilities of aerial service will show that possibly in this class lies the largest market, as well as a most profitable field. In air transport activities, the competition is highly developed and the saving of time is the main consideration. With aerial service many other factors than speed enter, and the competitive element is not as controlling. Furthermore, there are certain classes of service which, when performed by the airplane, are so much more efficiently and, in many cases, cheaply carried out that the aerial method may be said to hold a field of its own in this respect. For this reason, then, it seems very probable that time will bring the possibilities of aerial service more and more into prominence.

When the two fields of commercial aviation become more and more differentiated, and the types of aircraft for air transport and aerial service are specialized, one trophy will not be able to attract successfully contestants from both classes. The custodians, therefore, will have to choose which field they wish to stimulate. Air transport machines will have characteristics that will differ widely from aerial service equipment and any formula that is attractive to one may be difficult for the other.

To date, the Ford Trophy has been extremely valuable in bringing to the attention of the world the reliability and extent of American aerial service airplanes. It is to be hoped that it will continue to be a prize for excellence in this class, as it is in this field that the United States leads, and many are of the opinion that aerial service may become a more important activity for aircraft development than aerial transportation.

## Reliable Engines for Airplanes

IT IS now a generally accepted fact that the safety and reliability of a modern airplane rests almost entirely in the power plant. Problems in aerodynamic design, while by no means completely solved, have certainly been resolved to a point where the actual safety of the airplane is not jeopardized any longer. Similarly, with a full knowledge of the aerodynamic forces acting upon an airplane in flight, the structural design of a modern machine need not give any anxiety from the standpoint of safety. But with the airplane power plant, in spite of the high state to which modern airplane engines have been developed, there still remains the element of danger from two sources, namely stoppage and fire.

The first danger is entirely one of mechanical considerations, the whole solution of which devolves upon the detailed design of the engine with a view to the elimination of all unreliable features. On the other hand, the second danger, that of fire, is of basic origin since it is entirely a problem of fuel. A great deal of experimental work has been carried on both here and abroad in the development of an engine suitable for aircraft which will not require the use of fuels, such as gasoline, with a very low flash point. While little is actually published regarding these experiments, the report made recently to the British Association for the Advancement of Science by H. D. Pye, who is tryng to develop an aircraft engine which burns relatively inexplosive fuels, is of considerable interest.

Since there would appear to be little hope of making gasoline non-explosive, the most logical direction in which to turn for the fireproof engine is toward the Diesel principle. As is well-known, the fuel used in this type of engine is not explosive, having a very high flash point. It is, however, rendered explosive and, thereby, made to develop power, through being brought to a very high temperature. This heat is obtained by enormous and sudden compression of the vapor in the engine cylinder. It is said that the natives of Borneo use a similar principle to make fire, tinder being placed at the bottom of a wooden tube into which a plunger is rapidly forced with the result that the compressed air becomes so hot that the tinder ignites.

While this Diesel principle has distinct possibilities for airplane engines since the Diesel engine is one of the most satisfactory marine engines in use, it has the great disadvantage in that the exceedingly massive cylinders necessary owing to the very high pressures used are almost prohibitive in airplane power plants because of weight. It is understood, however, that, while success with an engine of this type for airplanes is not yet in sight, there is every reason for hope in the near future. The work which is going on, whether here or abroad, is of paramount importance and should receive every encouragement and consideration for it is leading toward the solution of one of the most important problems in the safety of flying and air transportation.

# Three-Engine Planes For Air Transport

## *Reliability and Punctuality Insured by Three-Engine Principle in Commercial Air Transportation.*

By C. G. PETERSON,
Assistant to the President, Wright Aeronautical Corp.

WHICH WOULD you prefer to use, a plane whose engine averaged a forced landing once every forty trips or a plane whose power plant would not average one forced landing during the life of the plane? That briefly sums up the situation between single and three-engine planes for transport work. The United States Air Mail Service figures show an average of one forced landing from engine trouble per 100 flights. On a daily transport line from New York to Chicago that would mean one forced landing every 25 days. By the laws of probabilities, planes with three engines of the same reliability as in the single engine plane would average one forced landing from power plant trouble in 3333 trips, or on the daily New York-Chicago route, one forced landing from power plant trouble every 833 days, instead of every 25 days.

### Probability of Forced Landings

Now, even the one forced landing per 100 flights as given by the U.S. Air Mail Service may be more optimistic than private contractors will get. It should be remembered that this one forced landing per 100 flights average was obtained with very lightly loaded planes, the pay load seldom reaching 1 lb. per hp. The newer air mail and transport planes are designed to carry from 2½ to 4 lb. per hp. Under the conditions of this heavier loading, the dependability of the engine will decrease. The English air transport line figures show that in 3502 flights in one year there were 87 forced landings from engine trouble or one forced landing per 40 flights, the flights averaging about three hour's duration. These English figures are carefully compiled; English engines are good engines; their inspection before each trip is carefully done and it may be that one in 40 is a more accurate figure for a transport line than one in 100, particularly with heavy loads. If, with a single engine plane, one forced landing per 40 flights were averaged, it would mean one forced landing each 10 days on a daily route from New York to Chicago. With a three-engine plane whose engines had the same degree of reliability as in the single-engine plane, the probabilities would be one per 535 trips with three water-cooled engines and still less with air-cooled engines.

Both the United States and the English forced landing figures given above are with water-cooled engines. The United States Mail figures 30% of their forced landings are from water radiation troubles; the English figure 28%. If 30 forced landings in 100 flights could be eliminated, then instead of one forced landing in 100 flights, the reliability would increase to one in 143 flights with air-cooled engines. The English figures would become one in 55.6 flights with air-cooled engines.

If, in the one forced landing to 40 flights case, air-cooled engines of the same degree of reliability were used on the three-engine plane, the probabilities become one per 1030 flights. Or, in the case of the New York-Chicago flight, instead of expecting one forced landing every 10 days, the probabilities would be one every 10 months or 257 week days.

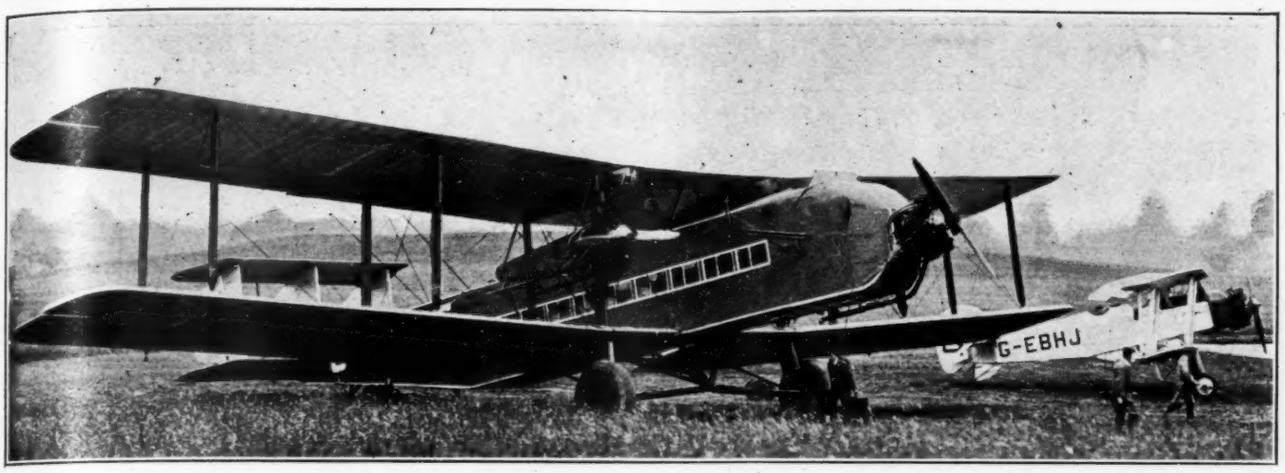
The above figures may seem fantastic but the formulae and equations of probabilities and chance are as fixed as for other mathematical calculations. The single zero on the roulette wheels of Monte Carlo gives the bank only one chance per 36 numbers but the bank wins.

### Importance of Reliability

It seems imperative that, on the larger air trunk lines, safety and punctuality must be obtained or the public will not support the lines. To be content with a minor degree of safety and punctuality will be to lose or never gain the patronage of the public. What more feasible method is there for increasing the likelihood of safety and punctuality than by using three-engine planes? The European air lines have been soliciting public use for six or seven years. The consensus of opinion there is for new transport planes to be multi-engined. This opinion may not have been formed from the increased probability of safety alone but from some of the other advantages of three-engine planes. Some of these may now be enumerated and discussed.

*The Koolhoven three-engine airliner*

**REMEMBER — NATIONAL AIR RACES, SEPT. 4-11**




*The Armstrong-Whitworth Argosy twenty-passenger three-engine airliner built for Imperial Airways (three Siddeley Jaguar 385 hp. air-cooled engines)*

Furthermore, spare and standby engines are a source of great expense. On long transport lines, it is common practice to figure one standby engine at each terminal for each plane. This requires three engines per plane for single-engine planes and five engines for 3-engine planes. If both planes had the same total hp. and the engine cost per hp. was the same, the price of the three engines required for the single engine plane would be 80% more than the five engines required for the three-engine plane. The cost of spares for a radial air-cooled engine is less than the cost of similar spares for a water-cooled engine, due to the unit construction.

### Comparative Fuel Costs

It is probable that one Liberty in a mail plane would burn 30% less fuel than would three 200 hp. engines. On the United States Mail costs, the fuel is only about 5% of the monthly expenditures, so the increased cost of fuel for three engines would be only 1½%, a very cheap rate of insurance for the added safety of the three engines and practically negligible when the larger loads of the three-engine plane are considred.

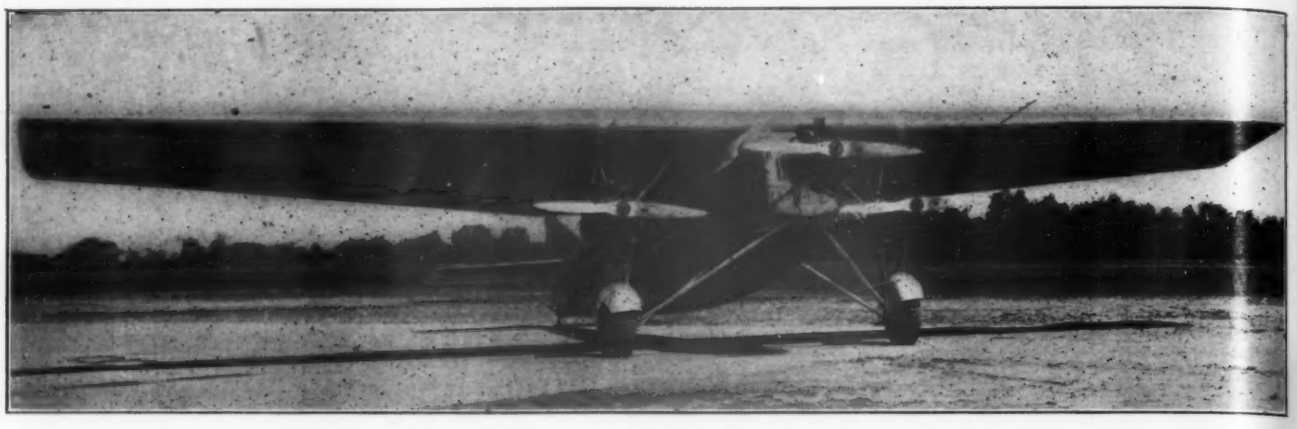
Where large engines have been used on commercial planes better results have been obtained with reduction gearing and slow turning propellers. With three-engine planes, using air-cooled radial engines, the engines give their full rated power at low speeds so there is no necessity for reduction gearing. For commercial flying reduction gearing is to be avoided as it increases first cost, is expensive to maintain and repair and adds another very vulnerable part to cause engine stoppage.

There are other important points to be considered. The public at present is not air-minded because it is afraid to fly and distrusts the use of the present single- and twin-engine planes. It does not even risk its mail or express in large volume with such planes. Its main fear is of forced landings. Remove the cause of most of the forced landings by using three-engine air-cooled planes and the psychological reaction will be tremendous. One steps into a three-engine plane with the lack of fear with which one would enter an automobile. It is the old story of single versus screw ocean liners. Proof is not lacking of this psychological reaction of the public in favor of three-engine planes. Two very prominent examples have occurred this year, of the willingness of the public to support difficult flying projects when well proved three-engine planes are used. The generous response of the group of financiers that backed Commander Byrd and the willingness of the public of Detroit and others to contribute to the Wilkins Expedition was undoubtedly because these two groups of the public had instinctive faith that the three-engine planes to be used were the safest. Both Byrd and Wilkins had been in the Arctic previously with single-engine planes. They both realized the advantages of three-engine planes and the public generously supported them in their choice. Public support by contributions is even harder to obtain than public support by patronage and use, so that these two examples of the willingness of the public to support well managed flying projects using three-engine planes should be constantly kept in mind by all transport lines, depending, as they must, on public support.

It is not difficult to visualize how the Air Mail between New York and Chicago can be made to grow if safety and

*The Fokker three-engine ten-passenger airplane (three Wright Whirlwind 200 hp. engines)*

**REMEMBER — NATIONAL AIR RACES, SEPT. 4-11**



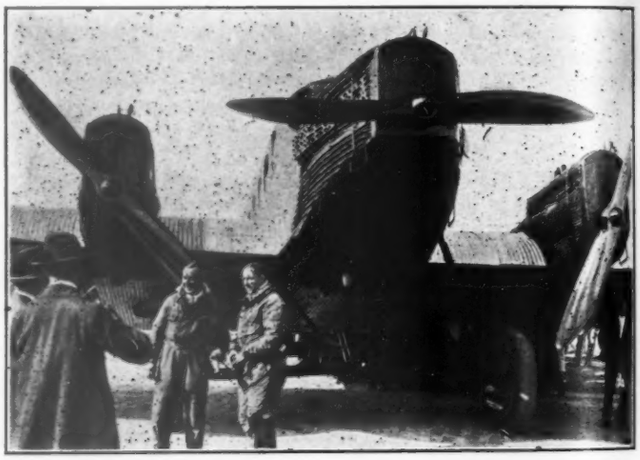
*The Ford three-engine Transport 4-AT (three Wright Whirlwind 200 hp. engines)*

It is difficult to obtain figures on the percentage of flights delayed or cancelled because of bad weather, which, in most cases, means poor visibility. The British figures show that, in Winter, 78% of their imperfect flights were caused by bad visibility and 50% in Summer. As punctuality will be demanded of air transport lines, whether for mail, express or passengers, this source of delays must be minimized. Poor visibility can be counteracted by stability in the planes, radio compass stations, Leader cables and Neon lights, and other aids, but all of these aids will be of no avail if the pilot cannot fearlessly get into his plane and know that there is not the remotest possibility of power plant failure before he reaches the large terminal field at the end of his run. The pilot's apprehension of power plant failure with single- and twin-engine planes instinctively forces him to fly low and depend on visibility for a place to land in case of power plant trouble, instead of depending on his aids to navigation. When the visibility is poor, he refuses (and properly) to fly these planes. What good will be a chain of Federal radio compass stations on the air routes and other aids to navigation, if the pilots do not have sufficient confidence in their power plants to rely on navigation aids instead of visibility?

### Increasing Pilot's Earning Capacity

The Air Mail pilots fly 12 to 16 hr. per week and few stick at it after they are 40. Locomotive engineers, even on the limited trains, average 30 to 40 hr. per week and frequently continue until they retire from old age. By decreasing the nerve strain of the pilot with a three-engine plane, there is no reason why he cannot greatly increase his hourage and his earnings and continue his flying for years. As the pilot's pay is about 30% of the operating costs of an airway, a saving in this item will be appreciable.

Again, take the Air Mail figures on accessory troubles as given by Mr. Whitbeck,—radiation troubles, 30%; ignition troubles, 29%; carburetion, 11%; lubrication, 8%; or a total of 78% of the causes of forced landings in single-engine planes are from power plant accessories. With an air-cooled three-engine plane with entirely individual power plants, with separate fuel, oil, control and ignition systems for each engine, the probability of a forced landing from accessory failure becomes almost infinitely remote.

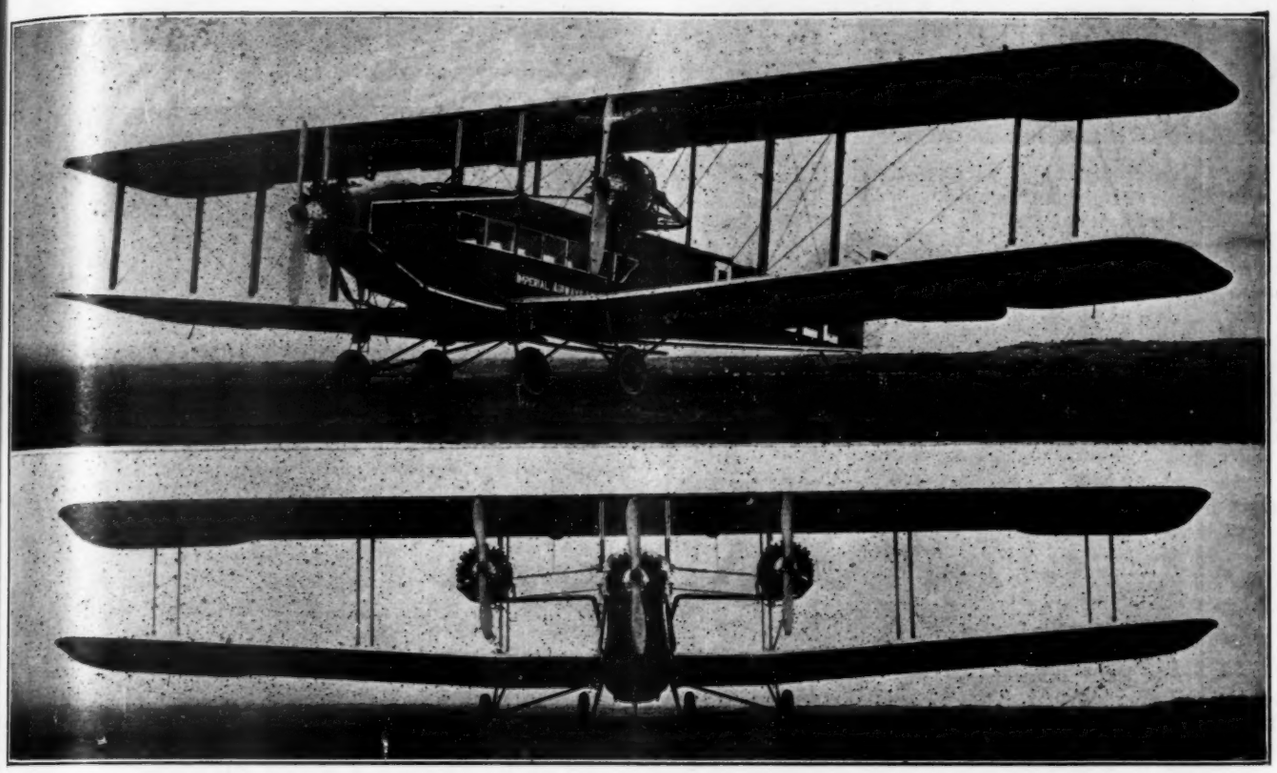


*The engine arrangement in the Junkers G-23*

With modern aviation engines the cost per hp. decreases slightly as the power increases but increased quantities rapidly lower costs. Price concessions are usually given for larger quantities which make the three-engine power plant usually less expensive per hp. than a single- or twin-engine plane with new engines.

*The German Junkers G-23 three-engine passenger plane*

**REMEMBER — NATIONAL AIR RACES, SEPT. 4-11**



*Two views of the Handley Page "Hampstead," (three Siddeley "Jaguar" air-cooled engines, 385 hp. each)*

punctuality are actually obtained. For instance, these three-engine planes will carry almost a ton of mail each. Three of them will carry all of the first class letter mail that originates each day in New York for Chicago. These planes could leave during the evening and, leaving New York even after midnight, would insure morning delivery in Chicago. The cost of operating such a line would be less than the present 2c letter rate. The Post Office Department now pays $250,000 a year for a small mail space on the Broadway Limited running between New York and Chicago and about $250,000 more for mail space on the Twentieth Century,—all for 2c letter mail without excess postage. The cost of the additional first class letter mail space on other trains is probably several times the $500,000 spent on the two limiteds. It can reasonably be expected that, if three-engine planes can carry all the letter mail between New York and Chicago safely and punctually for little more than it is costing now and less than the 2c rate, the people of these two cities will demand their mail to be flown without extra postage. The lower operating costs made possible by this increased volume of mail would increase the express traffic, and this added volume again reduce operating costs.

## Curtiss Exhibit at National Aircraft Show

An interesting contribution to the National Aircraft Show, which is being held in the Transportation Building, at the Sesqui-Centennial Exposition, Philadelphia, is the historical exhibit arranged by the Curtiss Aeroplane & Motor Company.

This includes the motorcycle used by Glenn H. Curtiss when he established his record of 137 m.p.h. in 1907, an antique Curtiss "pusher" machine, showing constructional detail, and a modern Curtiss Hawk P-1 pursuit plane. Curtiss-Reed metal propellers, models of famous Curtiss machines, trophies and pictures of Curtiss planes and various equipment are also on exhibition in this section.

As the Air Races are to be held in the afternoons only, visitors interested in aircraft will have an opportunity of viewing the exhibits in the mornings. These will be kept in the Transportation Building until after the National Air Races, which close on Sept. 11.

## The Curtiss Hawk with Wasp Engine

A Curtiss F6C-4 standard Curtiss Hawk naval pursuit plane modified to take a Pratt & Whitney Wasp R-1300 air-cooled engine recently completed successfully the contractors demonstration and one hour full power acceptance tests, and has been delivered to the Naval Air Station, Anacostia, for flight tests. The Hawk, with the air-cooled Wasp engine of 425 hp. at 1900 r.p.m., is more than 200 lb. lighter than the corresponding water-cooled fighter. Pilots who have flown the plane have been enthusiastic about its take-off, maneuverability, climb and landing qualities.

## Aircraft Engine Testing Shown at Sesqui

The exacting requirements which must be met by aircraft engines and the difficulties encountered in testing them over a wide range of service conditions are clearly shown in the exhibit of the Bureau of Standards at the Philadelphia Sesqui-Centennial Exposition.

This exhibit includes a model of the altitude laboratory with the parts labeled and partially cut away so that the operation of all the equipment is easily understood. The Bureau has built three of these altitude chambers in which aircraft engines can be tested under service conditions. The engine is mounted within a small concrete chamber having very heavy walls and airtight doors, so that the chamber can withstand considerable pressure from without.

The exhaust gas from the engine and air from the chamber are withdrawn by large rotary vacuum pumps, so that the air pressure within the chambers can be reduced to that corresponding to any desired altitude. The air to the carburetor is cooled by passing it over ammonia coils and its temperature is then raised to exactly the figure desired by electrical heating coils.

The engine is coupled to an electric generator placed outside the chamber, and in this way the power of the engine is absorbed and measured. Many different instruments are provided to measure air flow and pressure, water and oil temperatures, etc., all these being grouped conveniently outside the chamber. All engine controls are brought to one point, so that the operation of the entire testing plant is under the eye of the man in charge.

**REMEMBER — NATIONAL AIR RACES, SEPT. 4-11**

# National Air Race Week, Sept. 4-11

## *Air Races at Philadelphia to be High Spot of Sesqui-Centennial Celebration.*

WITH FROM five to six hundred airplanes expected to take part, in one way and another, in the National Air Races to start on Sept. 4, in Philadelphia, at Model Farms Field, everything is being put in readiness for the staging of what bids fair to prove the greatest air meet ever staged. While, at this time, the entry list for the nineteen events is not completed, there is every indication that a very representative body of commercial and military fliers will be gathered together at Philadelphia during Air Race week to participate in the crowded program of events arranged under the direction of Howard F. Wehrle.

### Record Crowds Expected

The linking up of the National Air Races with the Sesqui-Centennial Exposition will, of course, have a very advantageous effect upon the Races, but from all appearances the National Air Races are destined to prove the high light of the Sesqui-Centennial celebration with hundreds of thousands of people from all parts of the country and abroad visiting the mammoth exposition. Nor are these remarks based on pure predictions, for tickets for the Air Races are already selling in advance in large quantities sufficient to warrant the belief that record crowds will attend at Model Farms Field between Sept. 4 and 11. One hundred boxes of ten seats each are available, while 'bleachers' are being erected on each side of the boxes to accommodate several thousand persons. The reservation for the crowds walking about and observing the races is 3000 ft. long and 150 ft. wide.

Furthermore, and by no means of secondary importance, for the first time, the race management has been able to contract with an experienced concessionaire. Restaurants and refreshment stands will be provided and the contract bears a guarantee that first class food at reasonable prices will be available in quantities sufficient to satisfy 40,000 spectators per day, not to mention the aeronautical fraternity which, presumably, will also do some eating during race week.

As regards transportation to the field, the Philadelphia Rapid Transit Company, is planning to provide bus service in addition to the regular car service from all parts of the city to the field. The city police will regulate all traffic to, into and on the field and signs are being placed on all leading highways for directional purposes. Thirty-five acres have been set aside on the field for parking space for automobiles from which owners may watch the flying. It is interesting and gratifying to note that there is to be no "bayoneting" of the spectators. The crowds will be separated from that part of the field from which the planes will fly by a light mesh wire fence, which has gates in it. When the planes are not in the air or about to take off, the crowd will be permitted to roam about the field and inspect the planes. Furthermore, all aviation people will be permitted to go where they want at all times. The race management is of the opinion that if the aeronautical community has not learned how to take care of itself by this time, then there is no hope. Of course, there will be credentials for all persons out on the field when some of the more concentrated flying is going on. This is only to be expected, if for no other reason than that persons roaming inanely about when planes are taking off is both disconcerting to pilots and annoying to spectators in the rear.

This policy of freedom will be universally upheld and pilots attending the races, whether actual entrants in any of the events or not will be free to "do their stuff" daily as they choose.

### Aerial Circus

An aerial circus is also on the program with lots of comedy and many novel stunts. Labor Day, Sept. 6, which is destined to bring a veritable host to Philadelphia, with labor delegates and some few other conventions, will be properly and adequately celebrated at the Air Meet. A special circus made up of just about everything with wings at Model Farms Field will be staged, and those who are flying to the field will

*Model Farms Field, where the National Air Races are to be held, Sept. 4-11. The light area on the right of the tracks which cut through the middle of the photograph is that set aside for the races.*

**REMEMBER — NATIONAL AIR RACES, SEPT. 4-11**

have the chance of demonstrating their machines before representatives of almost every community of any repute in the United States and abroad. It must not be overlooked that this occasion will be the first time that aviation has definitely figured in a great national exposition of this kind and, while the Sesqui-Centennial grounds are some two and a half miles away from Model Farms Field, excellent transportation facilities will be available and there is little doubt that a majority of visitors to the Sesqui-Centennial during race week will visit Model Farms Field.

## Night Flying Displays

Every evening during the Air Races there will be night flying but it is not possible at this time to state definitely the completed arrangements for this part of the program. However, there is little doubt that some most interesting and spectacular exhibitions will be put up with the very fine program which the Army, the Navy and the Marine Corps pilots are preparing. Model Farms Field will be flood lighted. Then there are surprises. Major Wehrle has a host of new things under his hat and even if only a part of these surprises are put over, both the night and day air circuses will prove little short of startling to the sophisticated flying fraternity. Major Wehrle has been guaranteed certain devices, innovations and inventions which hitherto have existed only in theory and there is much to look forward to in this connection.

The schedule is so complete that something doing is assured every minute. The National Aircraft Show in the Transportation Building of the Sesqui-Centennial Exposition will be an attraction at which a most interesting historic exhibition of aircraft will be on show together with modern aircraft, engines and appurtenances to aircraft, as a striking contrast.

At the time of going to press the Army and Navy have not announced the names of the service pilots who will compete in the races or those who will fly in the extensive feature events and demonstrations. The Army Air Corps has entered the races as follows: Event No. 14, Observation planes, 16 airplanes; Event No. 15, Large Capacity planes, 8 airplanes; Event No. 16, First Pursuit Group, 12 airplanes; Event No. 18, Free-for-All Service Pursuit planes, 11 airplanes. The Navy will enter eight airplanes in Event No. 14, for observation machines and eight in Event No. 18, for pursuit types. The Marine Corps fighting planes squadron from Quantico is scheduled to give an aerial demonstration.

## Personnel

The National Air Races are being conducted under the rules of the Federation Aeronautique Internationale. The organization group, together with the personnel of the air race and aviation committees and the NAA Contest Committee, is as follows:

Howard F. Wehrle
*Managing Director*
Howard Mingos
Clarence M. Young
*Special Representatives*

AIR RACE COMMITTEE

| | | |
|---|---|---|
| H. N. Taylor, *Chairman* | W. Wallace Kellett | Howard F. Wehrle |
| C. Townsend Ludington | Harold F. Pitcairn | Clarence M. Young |

R. Sanford Saltus, Jr., *Secretary*

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Howard F. Wehrle J. Sidney Owen Victor J. Dallin John H. Batty

CONTEST COMMITTEE N.A.A. REPRESENTING THE F.A.I.

| | | |
|---|---|---|
| Orville Wright, *Chairman* | C. G. Peterson | F. P. Lahm |
| Geo. W. Lewis, *Vice-Chairman* | B. Russell Shaw | C. T. Ludington |
| Porter H. Adams | Hon. E. P. Warner | Glenn L. Martin |
| N. H. White, Jr. | N. H. White, Jr. | C. F. Schory, *Secretary* |

Hereafter, will be found a resumé of the events of the Air Races and a tentative list of entries. This list is by no means complete but, nevertheless, is sufficiently characteristic to show the nationalistic aspect which will be predominant at the Races.

TENTATIVE LIST OF ENTRIES

| *Name* | *Address* | *Models* | *Events* |
|---|---|---|---|
| Beeler Blevins, | Atlanta, Ga. | Waco 9-OX-5 | "A" |
| D. Mackay Solenberger, | Atlanta, Ga. | Waco 9-OX-5 | "A" |
| Arthur K. Killips, | Lyon, Ill. | Waco | "A" |
| Robertson Aircraft Co., | Anglum, Mo. | Standard J1 | "A" |
| Austin R. Lawrence | | Curtiss JN 4C | "A" |
| National Air Transport | | | |
| Douglas H. Davis, | Atlanta, Ga. | Waco 9 | "A" |
| Mayer Aircraft Co., | Bridgeville. Pa. | Waco 9 OX-5 | "A", 1, 13 |
| Mayer Aircraft Co., | Bridgeville. Pa. | Curtiss-Oriole C-6 | "A", 2, 11 |
| Lloyd O. Yost, | Coynham, Pa. | Waco 9 | A-1-11-13 |
| Chas. C. Baughan, | Philadelphia, Pa. | Waco 9 | 1 |
| Ludington Exh. Corp., | Philadelphia, Pa. | Waco 9 | 1 |
| Ludington Exh. Corp., | Philadelphia, Pa. | Waco 9 | 1 |
| Basil L. Rowe, | Keyport, N. J. | Thos. Morse | 1 |
| W. L. Gilmore, | Meadville, Pa. | Thos. Morse OX-5 | 1 |
| Wm. H. Emery, Jr., | Bradford, Pa. | Travel Air OX-5 | 1 |
| Travel Air Mfg. Co., | Wichita, Kans. | Travel Air OX-5 | 1 |
| Travel Air Mfg. Co., | Wichita, Kans. | Travel Air OX-5 | 1 |
| Travel Air Mfg. Co., | Wichita, Kans. | Travel Air OX-5 | 1 |
| Kreider-Reisner Aircraft Co., | Hagerstown, Md. | Waco 9 | 1-11 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | Orio-wing No. 1 | 1-13 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | Orio-wing No. 2 | 1-13 |
| Alexander Aircraft Co., | Denver, Colo. | Eagle Rock OX-5 | 1-11-13 |
| Roswell Becker, | Jackson, Mich. | Waco 9 | 1-13 |
| Chance Vought Corp., | Long Island City, N. Y. | Vought VO | 2 |
| Curtiss Flying Ser., Inc., | Garden City, L. I., N. Y. | Curtiss Oriole | 2 |
| Curtiss Flying Ser., Inc., | Garden City, L. I., N. Y. | Oriole | 2 |
| Curtiss Flying Ser., Inc., | Garden City, L. I., N. Y. | Lark | 2 |
| Leonard W. Bonnoy, | Flushing, L. I., N. Y. | Spcl. Biplane Hsp. 190 | 2 |
| Basil L. Rowe, | Keyport, N. J. | S.V.A. | 2-11-13 |
| Travel Air Mfg. Co., | Wichita, Kans. | Travel Air—Wright-E | 2-11-13 |
| Travel Air Mfg. Co., | Wichita, Kans. | Travel Air—Wright J4B | 2-11-13 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | Sesqui-winged arrow | 2-11 |
| Leonard W. Bonnoy, | Flushing, L. I., N. Y. | Bonnoy Cull Mono | 2-11 |
| Merril C. Hamburg, | Detroit, Mich. | Model | 3 |
| Merril C. Hamburg, | Detroit, Mich. | Model | 3 |
| Merril C. Hamburg, | Detroit, Mich. | Model | 3 |
| Warren H. Delancey, | Springfield, Mass. | Model | 3 |
| Harold L. Laird, | Chicago, Ill. | Model | 3 |
| Arthur O. Heinrich, | Baldwin, L. I., N. Y. | Models | 3 |
| Bertram Pond, | Peru, Ind. | Model | 3 |
| Desider Dayko, | Perth Amboy, N. J. | Model | 3 |
| Soc. of Model Aeronautical Engineers, | Wembley, England | Models | 3 |
| Soc. of Model Aeronautical Engineers, | Wembley, England | Model | 3 |
| Soc. of Model Aeronautical Engineers, | Wembley, England | Model | 3 |
| Jos. J. Lucas, | Chicago, Ill. | Model | 3 |
| Honore Somors, | St. Louis, Mo. | Model | 3 |
| Christy C. McGrath, | St. Louis, Mo. | Model | 3 |
| Elmer G. Eckman, | Philadelphia, Pa. | Model | 3 |
| Luther D. Bechtel, | Haddonfield, N. J. | Model | 3 |
| Dominic deStefano, | Philadelphia, Pa. | Model | 3 |
| Orrin Heckman Anderson, | Philadelphia, Pa. | Model | 3 |
| Elmer Aug. Wilson, | Philadelphia, Pa. | Thos. Morse OX-5 | 4 |
| W. L. Gilmore, | Meadville, Pa. | Waco 9 (3) | 4-8 |
| Ludington Exh. Corp., | Philadelphia, Pa. | (3) Travel Air OX-5 | 4-8 |
| Travel Air Mfg. Co., | Wichita, Kans. | T.M. | 4-8 |
| Basil L. Rowe, | Keyport, N. J. | Orio-Wing No. 1, No. 2 Sesqui-Wing | 4-8 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | Heath Sport Plane | 6-7-10 |
| Heath Airplane Co., | Chicago, Ill. | Meyers Midget | 6-7-10 |
| Kreider-Reisner Aircraft Co., | Hagerstown, Md. | K.R.A. Racer | 6-7-10 |
| Kreider-Reisner Aircraft Co., | Hagerstown, Md. | Curtiss Oriole | 11 |
| Curtiss Flying Service, Inc., | Garden City, L. I., N. Y. | Vought VO | 11 |
| Chance Vought Corp., | Long Island City, N. Y. | Fleetwing No. 2 | 11-17 |
| Pitcairn Aviation, Inc. | Philadelphia, Pa. | Special built OX-5 | 13-A |
| George Faw, | Santa Monica, Calif. | Farman | 13 |
| Ludington Exh. Corp., | Philadelphia, Pa. | Waco 9 | 13 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | Waco 9 | 13 |
| Pitcairn Aviation, Inc., | Philadelphia, Pa. | | |

## Event A

The on-to-the-Sesqui race for the Sesqui-Centennial Trophy, for civilians only, will be held from Aug. 24 to Sept.3. Total prizes of $4,000 are offered, the first price being $1,200, the second, $800., third, $600., fourth, $400., fifth, $300., sixth, $250., seventh, $150., eighth, $125., ninth, $100., and tenth, $75. Competing planes must be flown from a point 200 mi. or more (air line) from Model Farms Field, Philadelphia. The contest is open to any make or type of aircraft. The finishing time will be taken when the pilot delivers his log of flight at Contest Committee Headquarters. Landings and delivery of log must be made after 6:00 a. m. Sept. 1 and before midnight, Sept. 3. The Contest Committee will base its findings on average speed based on total elapsed time. Planes

starting at a point less than 500 miles from Model Farms Field will be awarded no points for distance. Planes will be awarded one point for each additional 100 miles above the 500 miles specified. Ten points will be allowed for each passenger carried, with a maximum of ten passengers or 100 points. A maximum of 200 points will be awarded to the plane completing the flight propelled by an engine of 40 cu. in. displacement or less.

### Event No. 1

First elimination of the free-for-all race for the Aero Club of Pennsylvania Trophy for low powered airplanes, for civilians only, to be held Saturday, Sept. 4, 2:30 p. m. Total prizes of $1,250. are offered, the first prize being $500., the second, $300., third, $150., fourth, $125., fifth, $75., sixth, $50., seventh, $25., and eighth, $25.00. Three of these races have been provided, of which this is the first. The planes which place in this event will not be permitted to enter the second race, but will be permitted to compete in the third race against planes which place in the second race. Engines must have a piston displacement of 510 cu. in. or less. Distance to be flown 60 mi.; five times around a closed course of 12 mi.

### Event No. 2

Free-for-all race for two, three or four place airplanes, for the Independence Hall Trophy for civilians only, to be held Saturday, Sept. 4, 3:45 p. m. Total prizes of $2,500. are to be awarded, the first price to be $1,000., the second $600., the third, $400., the fourth, $250., the fifth, $150., and the sixth. $100. Airplanes with an engine displacement of not to exceed 800 cu. in. can compete. Airplanes must carry a load of 340 lb. The distance to be flown is 84 mi.; seven times around a closed 12 mi. course.

### Event No. 3

Duration race for the model airplanes for the Mulvihill Trophy, to be held Monday, Sept. 6, at 9:30 a. m. Total prizes of $500 are to be awarded, the first prize to be $200., the second, $100., third, $75., fourth, $50., fifth, $30., sixth, $20., seventh, $15., and eighth, $10. There are no restrictions on the design of plane, except it must have a wing span not to exceed 40 in. Three official flights will be allowed. Contestant will be credited with the greatest elapsed time made in any of the flights. Each contestant must be a member of the Junior Flying League of the N. A. A.

### Event No. 4

Novelty Relay race for commercial planes, for the B. B. T. Trophy, to be held Monday, Sept. 6, at 2:30 p. m. Total prizes of $1,000. are to be awarded, the first prize to be $500., the second, $300., and the third, $200. The race is limited to civilians and entries to four teams each. Planes may be two or more place machines, engines to have a total displacement not exceeding 510 cu. in. The total distance is 36 mi. three times around a closed course of 12 mi.

### Event No. 5

Speed race for National Guard pilots and planes, the National Guard Trophy to be held Monday, Sept. 6, at 3:45 p. m. Total prizes of $1,000. are to be awarded, the first prize to be $500., the second, $300., third, $150., and the fourth, $50. This race is limited to the National Guard training planes of JN4-D type, minimum wing area of 350 sq. ft., direct engine drive, and total piston displacement not to exceed 720 cu. in. Planes must carry a load of 340 lb. Distance is 84 mi.; seven times around a closed course of 12 mi.

### Event No. 6

Sport plane race for civilians for the Scientific American Trophy, to be held Tuesday, Sept. 7, at 1:30 p. m. Total prices of $1,500. are to be awarded, the first to be $750., the second, $500., third, $150. and the fourth, $100. Planes may be single or two-place machines. Engine must have a total piston displacement of 300 cu. in. or less. Planes must carry a total minimum load of 170 lb., exclusive of fuel, etc., the load to consist of pilot and ballast. The distance is 60 mi.; twelve times around a closed course of 5 mi.

### Event No. 7

Race for light airplanes, for the Dayton Daily News Trophy, open to civilians only, to be held Tuesday, Sept. 7, at 3:00 p. m. Total prizes of $1,500. will be awarded, the first to be $750., the second, $400., third $200., and the fourth, $150. The engines must have a total piston displacement of 80 cu. in., or less. Minimum weight of pilot, 150 lb. In case the pilot weighs less, ballast must be placed in the cockpit. The distance is 50 mi.; ten times around a closed triangular course of 5 mi.

### Event No. 8

Novelty relay race for the Benjamin Franklin Trophy, for commercial airplanes, for civilians only, to be held Tuesday, Sept. 7, at 4:30 p. m. Total prizes of $1,000. are to be awarded, the first prize, $500., the second, $300., the third, $200. The rules and regulations are identical with Event No. 4.

### Event No. 9

Second elimination free-for-all race for two or more place low powered airplanes for the Aero Club of Pennsylvania Trophy, for civilians only, to be held Wednesday, Sept. 8, at 1:30 p. m. Total prizes of $1,250 are to be awarded, the first to be $500., the second, $300., third $150., fourth, $125., fifth, $75., sixth $50., seventh, $25. and the eighth, $25. The rules and regulations are identical with those provided for Event No. 1.

### Event No. 10

Speed and efficiency race for light airplanes, for the Aero Digest and Betsy Ross Trophies, for civilians only, to be held Wednesday, Sept. 8, at 2:45 p. m. Total prizes of $2000. are to be awarded (speed race), the first to be $600., the second, $350., third, $150., fourth, $100. The first prize (efficiency race) is to be $400., the second, $200., third, $125., and the fourth, $75. Engines must have a total piston displacement of 80 cu. in. or less. All planes must carry a total load of not less than 150 lb. The distance is 50 mi.; ten times around a closed triangular course of 5 mi.

### Event No. 11

Light commercial speed and efficiency race, for civilians only, for the Aviation Town and Country Club of Detroit Trophy, to be held Wednesday, Sept. 8, at 4:10 p. m. Total prizes of $2,500. are to be awarded, the first to be (speed race) $500., the second, $250., third, $100. The first prize (efficiency race) is to be $900., the second, $500., and the third, $250. Average air speed must be greater than 80 m. p. h. Engines must have a total piston displacement not to exceed 800 cu. in. The distance is 96 mi.; eight times around a closed course of 12 mi.

### Event No. 12

Final free-for-all-race for two or more place, for the Aero Club of Pennsylvania Trophy, for low powered airplanes, for civilians only, to be held Thursday, Sept. 9, at 1:30 p. m. Total prizes of $2,000. are to be awarded, the first prize to be $1,000., the second, $600., and the third, $400. The entries are limited to the planes which have placed in the first and second elimination races (Events No. 1 and 9). The engines must have a piston displacement of 510 cu. in. or less. The distance is 84 miles; seven times around the 12 mi course.

### Event No. 13

Special precision landing contest, for civilians only, for the Valley Forge Trophy, to be held Thursday, Sept. 9, at 2:45 p. m. Total prizes of $500. are to be awarded, the first to be $200., the second, $150., third, $100. and the fourth, $50. The amount of load to be carried is to be optional with the entrant. The contest involves gliding from a minimum altitude of 1,000 ft., with engine switch cut and engine stopped and landing by a predetermined point of location upon the field. The engine switch is to be cut at a minimum altitude of 1,000 ft.

### Event No. 14

Race for observation (two-place) airplanes, military only, for the Liberty Engine Builders Trophy, to be held Thursday, Sept. 9, at 3:30 p. m. The prizes will consist of individual trophy awards, the first, second, third and fourth place winners. Average speed must be greater than 90 m. p. h. Total wing area must be greater than 290 sq. ft. A contest load to be determined from the formula 400/1649 × cu. in. displacement of engine used × 85 and a crew of 340 lb. must be carried. The distance is 144 mi.; twelve times around a closed course of 12 mi.

### Event No. 15

Race for large capacity airplanes, military only, for the Liberty Bell Trophy, to be held Friday, Sept. 10, at 1:30 p. m. The prizes will consist of individual trophy awards to first, second, third and fourth place winners. Average speed must be greater than 85 m. p. h. Pay load must be 2,000 lb. or over. Total wing area must be greater than 600 sq. ft. using as a basis the cu. in. displacement for the 400 h. p. Liberty engine, the contest load will be determined from the formula 400/1649 × cu. in. displacement of engine × 2 lb. This is to be carried in addition to a crew of 340 lb. The distance is 120 mi.; ten times around a closed course of 12 mi.

### Event No. 16

This is a closed event for pilots of the First Pursuit Group, to be held Friday, Sept. 10, at 3:15 p. m. for the John L. Mitchell Trophy. The prizes consist of individual trophy awards to first, second, third and fourth place winners. The distance is 120 mi.; ten times around a closed course of 12 mi.

### Event No. 17

Air transport speed and efficiency race, for civilians only, for the Detroit News Trophy, to be held Saturday, Sept. 11, at 2:30 p. m. Total prizes of $2,500. are to be awarded, the first (speed race) to be $750., the second, $300., and the third, $200. The first prize (efficiency race) is $750., the second, $300., and the third, $200. Planes must be capable of maintaining an average speed of 80 or more m. p. h., carry a minimum contest load of 1,000 lb., in addition to pilot, fuel, etc. Contest load must consist of ballast. The distance is 120 mi.; ten times around a closed course of 12 mi.

### Event No. 18

Free-for-all military pursuit race, for the Kansas City Rotary Club Trophy, to be held Saturday, Sept. 11, at 4:15 p. m. The prizes are to consist of individual trophy awards to first, second, third and fourth place winners. This race is open to all military or naval planes of the pursuit type, including foreign entrants. The distance is 120 mi.; ten times around a closed course of 12 mi.

No pilot may take part in any of these races who does not possess the Federation Aeronautique Internationale Aviation Certificate and the annual license issued by the Contest Committee of the N. A. A.

## Chicago-St. Paul-Minneapolis Air Mail Contract

Postmaster General New, on Aug. 16, accepted the 45-day notice of discontinuance tendered by Charles Dickinson, contractor on the air mail route C.A.M. 9, Chicago, Ill., via Milwaukee and La Crosse, Wis., to St. Paul and Minneapolis, Minn., and immediately re-advertised for bids returnable Sept. 4, 1926 for the operation of the line.

The Twin Cities very greatly wanted an air mail service and brought great pressure to bear to have such a service established with Chicago as the terminus of the line. Advertisements were issued in accordance with the law and three bids were submitted. The National Air Transport Company was the highest bidder, offering to perform the service for 80 per cent of the postage. The next highest bidder was the Hamilton Aero Manufacturing Company, with a bid of 75 per cent of the receipts, while Mr. Dickinson's bid was only 48 per cent.

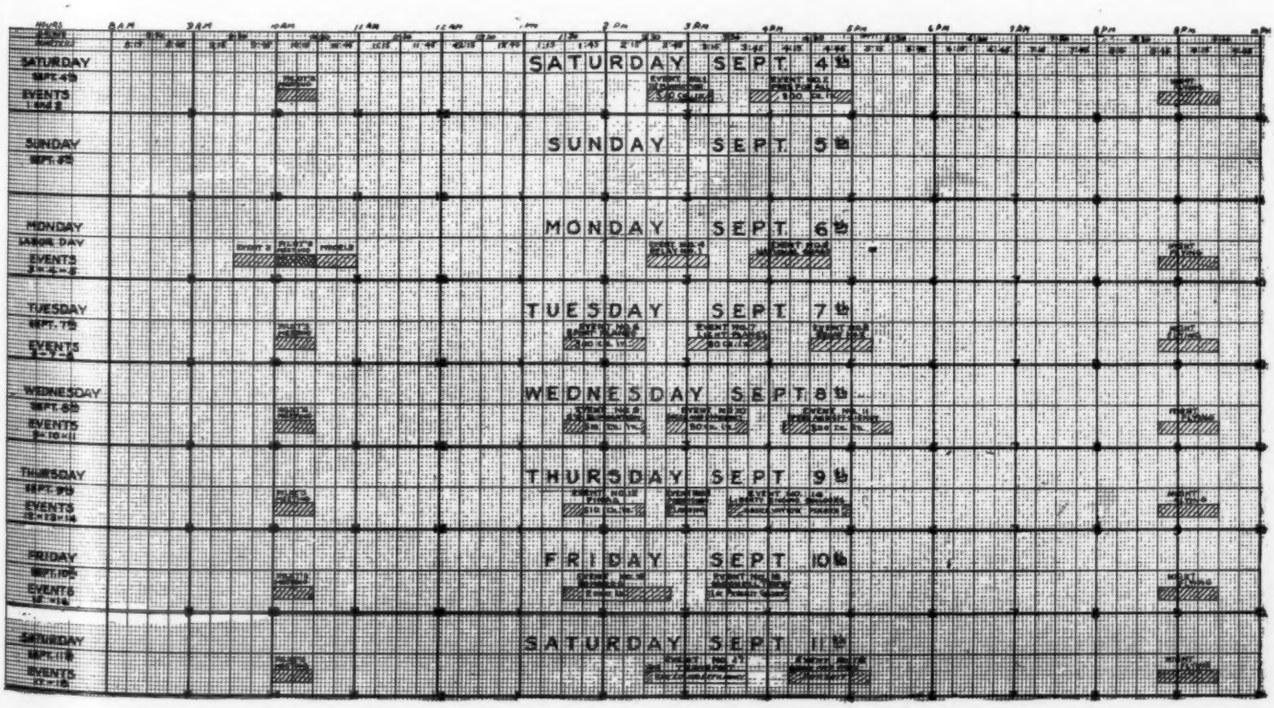
The Postmaster General has called for fresh contracts for air mail on the route: Chicago, Ill. by Milwaukee and La-Crosse, Wis. to St. Paul Minneapolis, Minn. and return, a total distance of 377 miles each way. Not less than six round trips are called for each week.

This route is open to bidders regardless of residence, and bids will be received at the Department in Washington until 12 o'clock noon, Sept. 4.

## Prague-Paris Air Service Resumed

The Compagnie Internationale de Navigation Aerienne of Paris soon will reopen its air service between Paris and Prague, via Strasbourg and Nuremberg, according to reports in Prague, Czechoslovakia. This service establishes a through air service from Paris (or London) via Prague to Warsaw, or to Vienna, Budapest, Belgrade, Bucharest, and Constantinople.

The Aviation Section of the Sezechoslovak Ministry of Public Works has stated that the negotiations between that office and an Anglo-Czechloslovak group for the opening of an air line between Prague and Trieste have been broken off by the interested groups on account of the large subsidies which the Czechoslovak Government would be required to pay.




*A diagramatic schedule of National Air Race Week at Model Farms Field, Philadelphia*

# Beach in Travel Air Wins Second Reliability Tour

*Meister in Buhl-Verville, Second—Stinson in Stinson Detroiter—Third.*

THE SECOND annual Commercial Airplane Reliability Tour was won by Walter Beach in a Travel Air plane with a score of 4043.3 points. He won a cash prize of $5000 in addition to the Edsel B. Ford Trophy, until next year's tour. Second place went to Louis G. Meister, who flew a Buhl Verville Airster. His total score was 3972.1 points. Eddie Stinson came in third in his Detroiter with 2737.5 points to his credit. The table of speeds gives all the points and the places of the other sixteen contestants that finished.

The finish of the Tour at the Ford Airport at Dearborn was witnessed by 30000 spectators who also had an opportunity of inspecting the new Ford-Stout airplane factory and the new Ford Airport hang r, both of which have recently been completed. The arrangements for the handling of the large crowd and automobiles were excellently planned and all who attended had a splendid view of the conclusion of a most successful race.

### The Return to Detroit

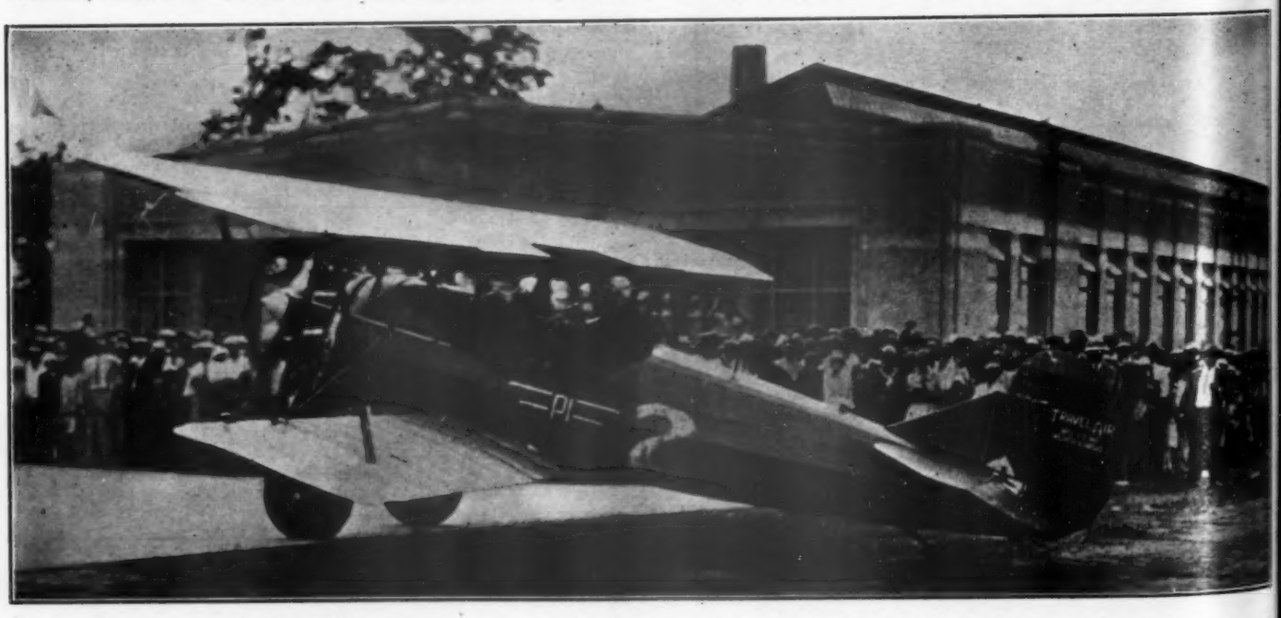
Weather conditions were perfect during the arrival of the contestants on Aug. 21. At half past four, Edsel B. Ford who had the roof of the older hanger as an observation platform announced the appearance in the distance of the first plane to arrive. This was the Curtiss Oriole, piloted by Casey Jones. The Waco No. 17 piloted by John H. Livingston was second to land while the winner of the race arrived a few minutes later. Within a few minutes all of the nineteen planes had reached the airport and was all taxiied into the new hangar, which is undoubtedly the most interesting and convenient structure of its kind in the world.

In last week's issue of AVIATION, the progress of the Tour as far as Wichita was given. From there to Detroit many interesting events took place, all of which demonstrated the reliability of the new type of aircraft that has been developed in the last few years for commercial purposes.

Walter Beach, after leading the Tour into his home town, Wichita, started off to Detroit with another burst of speed for he covered the distance to Kansas City in an hour and a half flat, gaining 18 points on the fast flying but more heavily loaded Airster, with Louis G. Meister, his nearest rival, at the stick. All the planes dropped into Kansas City entirely without incident except for one of Casey Jones' old stunts. He had seen a notice hidden in the corner of some paper that a $250 prize awaited the first plane into Kansas City, which newspaper Casey quietly folded into his pocket until he had slipped away from the Travel Air field bound for Kansas City with the throttle not far from wide open. Jack Frost, riding with him, it is said, waved the paper before Casey's eyes occasionally to keep up his battle eye—as one would a red sheet before a bull. When Casey arrived at Kansas City he was alone except for the Douglas Transport and then the story of the unknown prize came out. However, the veteran pilot of the clipped-winged Oriole ran into trouble about getting the money due to some question about whether the first arrival or the fastest man was to get it, and used up his C-6 engine for nothing unless the matter is straightened out later on.

### Weather Delay at Kansas City

After a welcome two day stop at Kansas City made interesting by the local reception committee, the tour turned back North to Moline, Illinois and nineteen of the twenty-one planes reached it without noteworthy incident. This has been so much the rule on the Tour that the newspaper writers generally have had to restrain their instinct for sensations. The start from Kansas City, was, however, delayed an hour by a torrential rainstorm which poured down like a cloudburst just as the planes were to start. This is the only deviation from schedule of the whole trip. Waco No. 17 was forced down temporarily with a broken water pump and Eaglerock No. 6 went down near Moline for a short time, however, both came on in plenty of time to go on with the Tour Tuesday, but with bad dents in their point scores. The accompanying table of results shows that the Travel Air, Air-



*The winner of the Ford Trophy. The "Pioneer Showcase", the Travel Air with the Wright Whirlwind engine (200 hp. air-cooled) which scored highest points in the Commercial Airplane Reliability Tour, coming in at the finish of the Tour at Ford Airport, Dearborn, Mich.*

ster and Mercury Arrow were steadily holding their relative positions.

The Tour encountered heavy rain storms on the way to Indianapolis but Beach ploughed through at a speed close to 120 m.p.h. Two of the planes made temporary landings enroute but came on after some delay. J. G. Ray in No. 19 Pitcairn Fleetwing was down to cool off his C6 engine which had not been behaving quite perfectly; the Hess OX-5 entry stopped for gasoline. Jack Laass in his little Driggs monoplane rejoined the Tour here in Indianapolis, but was again in engine trouble with valves the next day and again dropped out.

### On from Indianapolis

Again to Cincinnati the next day the planes had to drive through bad, cloudy weather that laid a low ceiling down close above the hills. The same consistent performances ensued in spite of the bad flying weather except that Major Schroeder had to demonstrate how useful three engines are when he barely made the landing field at Lunken Airport with one engine, the gasoline supply to the other two having been interfered with.

When the planes had arrived in Cincinnati, it was found that Walter Beach in his Travel Air (Wright J4) had amassed 3148.6 points against 3049.4 for Meister in the red Buhl Verville Airster (Wright J4). Next in line, but considerably behind were the Mercury Arrow (Curtiss C6), Waco No. 17 (Curtiss C6), Stinson Detroiter (Wright J4), Waco No. 26 (Hisso), Waco No. 18 (Curtiss C6), Travel Air No. 3 (Hisso) and Ryan M1, (Wrright J4) in the order named. Major Schroeder in the Ford-Stout 3-engine plane would have been third had he been in the contest.

### The Accident

About thirty miles from Cleveland on the hop from Cincinnati occurred the most unexpected and most serious mishap of the trip, if "serious" can be at all applied to the minor troubles of this tour. Major Schroeder with a full cabin of passengers was flying along at a good clip when with a sudden snap and jolt the right engine fell away from its supports under the wing. As was discovered afterward, half the metal propellor had flown loose from the hub, and the resulting terrific vibration had almost instantaneously torn away the engine. The right landing wheel was connected to the engine by a vertical strut, and in falling the engine tore away most of the right side of the landing gear. At first the trip toward Cleveland was continued on two engines but soon the left engine was noticed vibrating.

At this Major Schroeder headed for the nearest suitable spot to land but when it was almost reached the left engine began to vibrate terrifically. Since part of this propeller was later found to be sheared off, it was believed at first that one of the loose struts of the landing gear swung over to the left far enough to hit the left propellor. But since parts of both propellors were found together later it was determined that the left hand propellor had been hit by a piece of the right one when the latter flew off. Just before landing the left engine fell away completely, carrying practically all of the remaining half of the landing gear. With no landing gear Major Schroeder cooly put the big machine down, and after sliding and reeling along the ground for some distance it came to a stop without any injury to either the pilot or the other occupants. Among the passengers was Ernest Greenwood, Secretary of Commerce Hoover's representative.

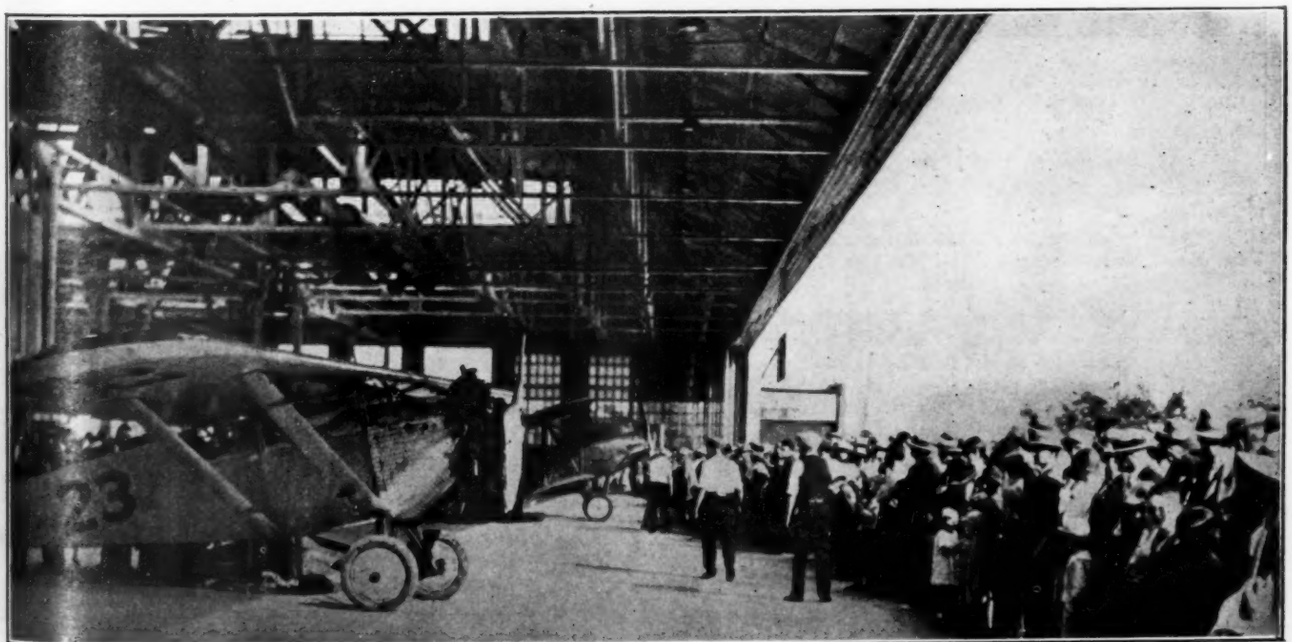
This unfortunate incident will probably make designers of several parts of airplanes assume a somewhat thoughtful attitude in regard to what may happen when a propellor becomes badly unbalanced at full speed.

### The Mercury Arrow

And, to end what was the least successful day of the tour, Harvey H. Mummert, piloting the Mercury Arrow down to the Cleveland Municipal Airport, fish-tailed a moment too long before straightening out to put the ship down. The result that followed was that the plane struck the ground somewhat sidewise and on one wheel which promptly caved in and allowed the ship to summersault over on its back. Neither Mummert, Clarence Love, or Jas. F. Meade, General Manager of the Aerial Service Corporation, was hurt, but both were badly shaken up. The ship was too much damaged to proceed and dropped out of the Tour.

The Mercury Arrow had stood third in the point score and had been putting up a steady consistently high performance. Everyone regretted the enforced withdrawal of the short-fuselaged stronglooking little plane.

The landing gear of the Mercury Arrow was of the divided axle type with rubber in tension at the top of an inverted V close under the floor of the fuselage. This single rubber band supplied the shock-absorption for both wheels. The failure, however, was entirely in the wheel under the stress of the sidewise landing.



Underwood.

*Some of the planes of the Tour back in the hangar at Ford Airport, after the two weeks of air touring during which they covered 2,599 miles. The Ryan M-1 monoplane will be seen in the foreground. This hangar is one of the new buildings erected at Ford Airport and is probably the largest airplane hangar in the country.*

Leaving Cleveland the remaining 20 planes flew uneventfully on to Fort Wayne. These included the Woodson No. 13 piloted by Russell Hosler which had rejoined the tour for the finish, though unable to score in the contest.

The arrival at Fort Wayne was exciting and interesting enough to have been witnessed by more than the rather small crowd that was on hand to meet the planes. Walter Beach tore across the white marker first followed slowly after a short interval by Meister in his beautifully streamlined red Buhl Verville. Then in quick succession came several groups in which the planes were only a few seconds apart until the entire twenty had come in within twenty-five minutes. The distance of the hop was just about enough to keep them bunched closely with the lead of 19 minutes which the slowest plane had over Beach, who started last. The Buhl Verville Airster won this lap, for Meister's speed was less than two m.p.h. less than the Travel Air, and with his 200 pounds greater load he has a 4% better Merit Number. The story of the last lap to Detroit has been told above.

## Analysis of Causes

As will be seen by the following brief list of the planes which had to drop out of the Tour, practically all of them were caused by engine trouble of a minor but important

*Walter Beach (left) and Brice Goldsborough who won the Edsel B. Ford Trophy contested for in the Commercial Airplane Reliability Tour, with their machine, the Travel Air with the Wright Whirlwind engine.*

nature. The fact that all of these motor troubles except one occurred in war-time engines is sufficiently indicative of the reasons why aviation is at last looking to more modern designs, even at higher prices.

CAUSES OF ELIMINATION OF CONTESTANTS

| Plane No. | Plane | Pilot | Engine | Appx. Miles Covered | Cause of Dropping Out |
|---|---|---|---|---|---|
| 15 | Woodson | H. H. Gallupp | Salmson | 220 | Eng. trouble Valves |
| 25 | Driggs | Jack Laass | Wright-Moorhouse | 580 | Eng. failure—crank shaft and valves. |
| 22 | Babcock-Teal | A. F. Everett | Curtiss OX-5 | 860 | Eng. trouble |
| 13 | Woodson | Russell Hosler | Salmson | 890 | Eng. trouble valves and piston |
| 7 | Ford-Stout | R. W. Schroeder | Three Wright J4 | 2240 | Propeller failure and consequent structural damage |
| 11 | Mercury Arrow | H. H. Mummert | Curtiss C6 | 2267 | Landing wheel cave-in due to sidewise landing. |

## A Resume of the Results of the Tour from Wichita to Detroit. (For Results to Wichita see AVIATION Aug. 23.)

| Plane no. | Name of plane | Pilot | Lap No. 8—172 mi. Wichita to Kansas City Speed m.p.h. | Lap No. 9—269 mi. Kansas City to Moline, Ill. | Lap No. 10—252 mi. Moline, Ill. to Indianapolis | Lap No. 11—107 mi. Indianapolis to Cincinnati | Lap No. 12—210 mi. Cincinnati to Cleveland | Lap No. 13—172 mi. Cleveland to Ft. Wayne | Lap No. 14—128 mi. Ft. Wayne to Detroit | Final Pt. Score | Position at Finish |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Buhl-Verville Airster | Louis G. Meister | 103.6 | 119.4 | 116.5 | 124.6 | 116.3 | 130.9 | 134.0 | 3972.1 | 2 |
| 2 | Travel Air | Walter Beech | 115.3 | 130.1 | 119.5 | 134.8 | 116.3 | 131.3 | 138.3 | 4043.3 | 1 |
| 3 | Travel Air | C. E. Clark | 97.5 | 107.6 | 105.2 | 105.5 | 97.4 | 120.7 | 118.2 | 2230.5 | 7 |
| 5 | Alexander Eaglerock | R. C. Rowlands | 84.5 | 99.0 | 87.6 | 94.5 | 82.1 | 99.5 | 103.0 | 1949.9 | 9 |
| 6 | Alexander Eaglerock | J. R. Williams | 78.3 | 38.9 | 75.2 | 51.1 | 78.2 | 97.0 | 96.0 | 1306.2 | 15 |
| 7 | Ford 3—Engine Transport | R. W. Schroeder | 87.2 | 108.0 | 104.5 | 111.1 | — | — | — | —— | * |
| 8 | Ford Transport | Leroy Manning | 93.5 | 105.7 | 87.1 | 113.7 | 91.4 | 100.2 | 75.5 | 1055.5 | 17 |
| 10 | Curtiss Oriole | Charles S. Jones | 108.6 | 111.3 | 103.7 | 86.2 | 91.3 | 111.1 | 134.7 | 1708.0 | 11 |
| 11 | Mercury Arrow | Harvey H. Mummert | 100.5 | 111.4 | 101.9 | 110.1 | 99.1 | — | — | —— | † |
| 12 | Fairchild | Richard H. Depew, Jr. | 85.5 | 98.4 | 87.6 | 84.0 | 80.2 | 98.8 | 98.5 | 1020.2 | ¶ |
| 13 | Woodson | Russell Hosler | — | — | — | — | — | 104.3 | — | —— | ¶ |
| 14 | Woodson | Philip H. Doones | 83.3 | 98.9 | 90.6 | — | 83.3 | 108.8 | 40.4 | 1273.9 | 16 |
| 15 | Woodson | H. H. Gallup | — | — | — | — | — | — | — | —— | † |
| 16 | Hess | William A. Munn | 71.8 | 80.0 | 49.2 | 81.8 | — | 91.4 | 94.7 | 818.0 | 19 |
| 17 | Waco | J. W. Livingston | 96.0 | 8.5 | 93.3 | 85.5 | 90.0 | 100.2 | 112.4 | 2672.3 | 4 |
| 18 | Waco | E. G. Knapp | 95.5 | 112.5 | 104.3 | 111.0 | — | 115.3 | 123.7 | 2287.0 | 6 |
| 19 | Pitcairn Fleetwing | James G. Ray | 76.0 | 92.2 | 53.3 | 79.7 | 71.9 | 93.7 | 99.1 | 1779.6 | 10 |
| | | | | | (Down) | | | | | | |
| 20 | Pitcairn Orowing | Harold F. Pitcairn | 72.8 | 86.08 | 76.7 | 71.8 | 75.5 | 93.3 | 95.0 | 1685.0 | 12 |
| 21 | Swallow | C. M. Sterling | 63.2 | 95.6 | 81.7 | 85.8 | 57.4 | 94.5 | 95.8 | 1414.2 | 13 |
| 22 | Babcock Teal | A. F. Everett | — | — | — | — | — | — | — | —— | § |
| 23 | Ryan M1 | Vance Breese | 103.2 | 118.9 | 113.7 | 96.9 | 108.5 | 127.5 | 126.3 | 1966.8 | 8 |
| 24 | Driggs Dart | Jack Laass | — | — | — | — | — | — | — | —— | ‡ |
| 25 | Travel Air | C. S. Irvine | 78.2 | 87.5 | 83.1 | 97.6 | 80.1 | 97.4 | 97.4 | 1316.7 | 14 |
| 26 | Waco | Lloyd Riddle | 105.8 | 104.6 | 101.1 | 114.0 | 101.4 | 119.7 | 116.5 | 2587.1 | 5 |
| 27 | Wilson Detroiter | Eddie Stinson | 99.6 | 117.3 | 106.7 | 115.6 | 104.7 | 128.1 | 124.7 | 2757.5 | 3 |

# Another Success for Napiers !

TO discover the best German seaplane a competition has been held in Germany recently.

This Competition proved so strenuous both from a reliability and seaworthyness point of view, that of the seventeen machines entered, only three finished.

A Heinkel seaplane, fitted with the only British NAPIER Lion engine in the competition, won First Prize, being the only machine and engine to complete the severe trials without any repair or penalty mark.

***For all purposes in all climates install the British-built water-cooled***

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***The finest aero engine in the World***

## OTHER NAPIER ACHIEVEMENTS IN 1926

| | | |
|---|---|---|
| Cairo to Cape Town and back to England by four Royal Air Force Fairey machines | Total engine miles - - | 56,000 |
| Plymouth to Alexandria and back by two twin-engined Royal Air Force Supermarine flying boats | " " " - - | 27,600 |
| Spain to Buenos Aires by twin-engined Dornier flying boat flown by Major Franco | " " " - - | 12,518 |

***All these flights were accomplished free of any engine trouble.***

D. NAPIER & SON LTD.
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The splendid performances of the Wright Whirlwind engine have been undoubtedly assisted by the presence with the Tour of two Wright field service men, Kenneth J. Boedecker and A. L. Hufford. These engines have consequently had the benefit of specialized attention throughout the trip.

### Further Commercial Aspects

The performances of the leaders in this Tour have set a mark for light commercial plane efficiency that may make it possible for new air lines to be established more quickly because of the very much lower capital expense for planes such as these over most of those now in use, as well as the greatly increased pay load per h.p. which these new designs can carry at high speed. The use of the air-cooled engine and refined streamlined design are responsible for the transportation of small loads at 4 pounds per h.p. over 2500 miles at an average speed based on elapsed time between landing fields of over 110 m.p.h. That the name of Verville should be associated with this achievement is not surprising to those who know the man. And the Travel Air load of 3 pounds per h. p. at still higher speed, is another performance which should attract a great deal of attention.

It is known that one or two manufacturers on this Tour have booked up several orders for their machines and it is especially interesting to note that these are the ones who have made use of the different stopping places to show their machines in action both in exhibition and passenger-carrying flights. These concerns have just begun to touch the business possibilities of the annual Commercial Airplane Reliability Tour.

Congratulations were given by everyone to the manufacturers of the winning airplanes. The Travel Air Company, Alfred Verville and Eddie Stinson, who produced the three leaders received unstinted praise for their achievements. The Wright Aeronautical Corporation whose Whirlwind Engine was used by all three leaders has reason to take pride in the reliability and endurance shown by this engine. Perhaps the most noteworthy instance of success was the demonstration by the Pioneer Instrument Company of the value of their instruments in navigation. Walter Beach stated that the victory of the Pioneer entry which he flew was due largely to the skillful navigating of Brice Goldsborough of the Pioneer Instrument Company who accompanied him around the circuit.

### Dinner to Pilots

After the Tour, a dinner was given at the Hotel Statler to the pilots who participated in the Tour. Harold H. Emmons was toastmaster. At the speakers table with the pilots were Edsel B. Ford, William B. Mayo, Howard E. Coffin, Eddie Rickenbacker and the two principal speakers, Hon. William P. MacCracken, Assistant Secretary of Commerce for Aviation and Mayor Smith of Detroit.

The cordial welcome of Detroit to the air tourists was evidenced by the five hundred persons who attended the dinner. Mr. Emmons predicted that Detroit would become the manufacturing center of the United States for aircraft as it had for the automobile. He invited all manufacturers of aircraft to locate their plants in Detroit.

Asst. Secretary MacCracken, in the first public address he had made since taking his new office, asked for the cooperation of all aviation people in the pioneering work that he will undertake. He said that he hoped with this support to enable the Department of Commerce to aid the development of commercial aviation greatly.

Edsel B. Ford presented the medals to the participants of last year's Tour, and as a fitting conclusion to the dinner presented Walter Beach, the winner of this year's contest with the elaborate silver trophy which bears his name.

The general opinion of this year's Tour was that it had gone far to demonstrate to the public the reliability of the new types of aircraft that are being developed for aerial service. The officials of the race were given the greatest praise for the management of the contest, and it passes into aeronautical history as one of the most successful aeronautical events that has ever taken place.

# The Detroit News Balloon Trophy

ON SATURDAY afternoon, Aug. 21, at the Ford Airport, Dearborn, Mich. the balloon race for the Detroit News Trophy was started after the return of the airplanes in the Commercial Airplane Reliability Tour. There was $1500 in cash prizes to be awarded in addition to the Trophy and the race was won by J. A. Boettner flying the Goodyear IV, one of the two entries of the Goodyear Tire and Rubber Company. Second place was secured by Svend A. U. Rasmussen flying the Hi-Ball II, of the Detroit Flying Club, and third place by W. C. Naylor, in the Michigan I, of the University of Michigan. This balloon, incidently, was the largest in the race having a capacity of 40,000 cu. ft. For this reason, Naylor carried George Hineman as aide. Boettner and Rasmussen were both forced down by a storm which made it necessary for them to terminate their flights, Boettner actually winning by two miles.

The first balloon to leave was the Michigan I, the 40,000 cu. ft. capacity craft entered by the University of Michigan Flying Club, Ann Arbor, and piloted by W. C. Naylor, with George Hineman, of Byron, O., as aide. Exactly at 4 p. m. when the starting gun fired at the signal of Ward T. Van Orman, referee, the leader cast off. It rose almost straight into the air over the field.

As it went Naylor and his aide leaned over the side of the basket, waving their hands, the American Flag fluttering from the netting.

A minute later the Hi-Ball II, piloted by Svend A. U. Rasmussen, left its moorings, and at 4:04 p. m. the Goodyear IV, the entry of the Goodyear Tire & Rubber Co., and The Detroiter bearing the colors of the Detroit Flying Club, took off, almost together.

The pilots, John A. Boettner, of Akron, and Charles D. Williams, Jr., of Detroit, kept their craft almost together for several hundred feet until the breeze separated them.

At 4:05 p. m. the Skylark, the 20,000 cu. ft. capacity balloon piloted by Kenneth W. Warren, Detroit, followed the other four, and at 4.08 p. m. the Goodyear VI, another Goodyear entry piloted by Warren W. Morton, Akron, was on its way.

It was perfect ballooning weather, the pilots said before the start of the race. The wind was strong enough, they said, to make the chances for setting a new distance record excellent, and with the weather fair it was possible that a new duration record for balloons inflated with coal gas would be established. Thunderstorms or showers would have been fatal to their hopes, they said.

Both Ralph H. Upson, chairman of the contest committee, and Van Orman, who this year won the James Gordon Bennett International Balloon Race, predicted that good records would be made. The record for distance is slightly less than 500 miles, and that for endurance is 23 hr. and 28 min.

Under the rules of the race, all the balloons except the University entry carried only one man. The Michigan I is a larger balloon than the others, since its capacity is 40,000 cu. ft. while all of the others, except the Skylark, have capacities of 35,000 cu. ft. The capacity of the Skylark is 20,000 cu. ft.

The judge of the race was Judge Henry S. Hulbert, Harry H. Kneeper, was the timer, and Van Orman was the referee. Mr. Upson acted as chairman of the contest committee, and representative of the National Aeronautic Association and the Federation Aeronautique.

The pilots in The News race were all experienced balloonists, having taken part in national balloon races, and several of them have won races or set records.

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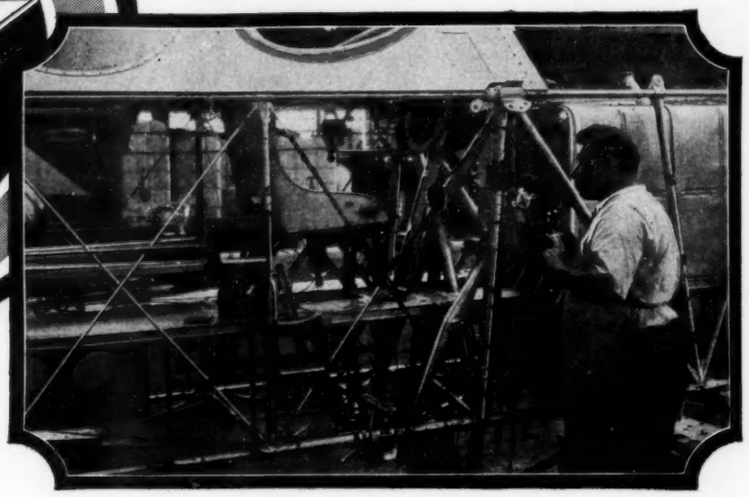

# Peace Time Planes in Quantity Production

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Whether on the wing of a mail plane, a bomber, a naval reconnaissance plane or a commercial carrier, the tri-color star of The Glenn L. Martin Company holds the same significance to the experienced observer—*engineering supremacy—fine workmanship and unremitting care—experience dating back to the infancy of the art seventeen years ago*—DEPENDABILITY.

ALTHOUGH in many sections of this country a plane in flight in the sky or parked in a field is a sight sufficiently usual to occasion no comment, few people have any conception of the present size and solidarity of the industry. If you should ever wish to impress your non-flying friends with the growth of aviation, simply tell them that a single airplane factory (the Glenn L. Martin plant) has unfilled orders for planes on its books which total to three million dollars.

# Woodson Commercial Airplanes

## *Three Commercial Models Produced in Ohio Factory.*

THE WOODSON Engineering Co., of Bryan, O., manufacturers of commercial aircraft, was formed in August, 1924, by O. L. Woodson, then a field manager of the United States Air Mail Service. Mr. Woodson was primarily a pilot in the Army Air Corps (then the Air Service) during the War and served in France, afterward spending four years with the Air Mail Service. Realizing the need for a fast commercial plane with plenty of reserve power and a high factor of safety, together with the other requirements of quick take-off and slow landing speed, the Woodson Engineering Company set to work on this problem and, in May, 1925, produced the first plane, known as the Woodson Express. This machine has proved a marked success and, while the company started upon a conservative scale with a limited capital and space, the demand for these Woodson planes has increased so rapidly that the factory has twice been increased in size until it now covers 9,000 sq. ft. of manufacturing floor space and preparations are under way for a further increase in both the size and the resources of the company.

At present, with a manufacturing force of 25 men, the Woodson Company is producing three airplanes per month, but it is anticipated that, in the new factory which is now being constructed, the production will increase to one airplane per day. The company now produces three models, the Express, the Sport and the Woodson Transport, all single-engine planes of characteristically excellent design and construction, which cover almost the entire field of commercial air work.

In actual flying activity, the Woodson Company is also to the fore, inasmuch as they maintain a first class flying field at Bryan, O., with a 1900 ft. runway East and West, 800 ft. wide. The runway is cindered and consequently in usable condition all the year around. Modern service system is available with telephone and telegraph right on the field which is only six blocks away from the center of the town. Needless to say, the Woodson Engineering Company cordially invites all pilots to visit them at the field where all service and storage will be provided free of charge. We would imagine that the company must receive many visitors, for the field is located in a vicinity where a very great deal of flying is going on and the facilities available must prove a great attraction to passing pilots.

### Woodson Sport

Of the company's products, the Woodson Sport, Type 3-A, will be described first. This is a five-place biplane machine powered with either a 230 hp. Salmson radial air-cooled engine, a Wright Whirlwind 200 hp. air-cooled engine, a 180 hp. Hispano Suiza water-cooled engine or a Curtiss K-6 engine, also a water-cooled engine. This machine was primarily designed for feeder-line air mail work and is constructed very ruggedly to withstand the roughest routine treatment. It has a tubular welded steel tube fuselage and tail group and accommodates four passengers and the pilot.

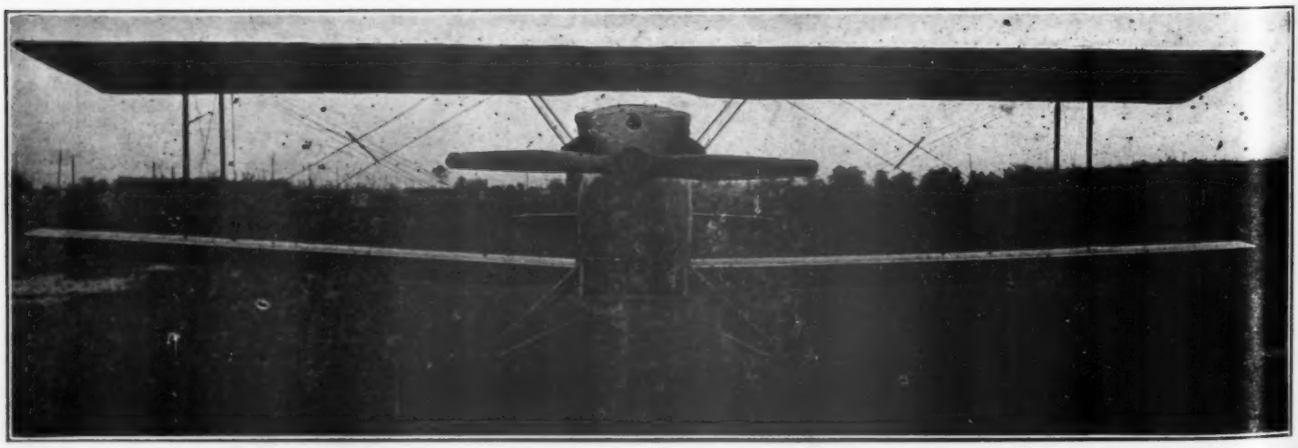
### Standard Details

The wing structure is of the braced single bay type, the upper wing being constructed in two sections joined at the center line with heavy strap fittings where the wing is supported by a cabane of four struts sloping outward at a 30 deg. angle. The lower wings are attached to the fuselage longerons by means of fittings welded to the structure and in addition tied through with 5/16 in. nickel-steel rods. The wings are constructed of I-section spruce spars with ribs of plywood construction with spruce cap strings. The internal bracing is provided by means of double 3/16 in. steel rods throughout. Ailerons are on all four wing tips and the controls are placed inside the wing, each individual control operating independently of the others. The lower wings near the fuselage are provided with a sidewalk of plywood 30 in. wide.

The fuselage is constructed of 1025 steel tubing, rigidly constructed in the forward section while the after section behind the cockpits is braced with wire and permits a degree of flexibility which is extremely satisfactory from the structural standpoint. The engine mounting is detachable by removing four bolts and is so designed that when removed the entire power unit—radiator, if any, oil tank and cowling—comes off as a whole and thus a change may be made from a water-cooled engine of the Vee type for example to an air-cooled radial within a very few minutes. This is, of course, an extremely valuable point for it means that, in the event of an overhaul becoming necessary in the engine, the airplane itself is out of service only during the few minutes it takes to change the engine. Furthermore, a larger variety of engines may be employed because of the adaptability of the design to either the water- or air-cooled engine.

The tail unit is constructed, as previously mentioned, entirely of steel tubing. The elevator horns or king posts are inside the fuselage and are operated by four 5/32 in. cables which run direct to the control column, thus eliminating all pulleys, etc. The rubber, which is balanced, is of very good size enabling excellent ground maneuverability. The stabilizer is adjustable in flight from the pilot's cockpit and the fin may be adjusted on the ground to correct for the propeller torque.

The undercarriage, which has a very wide tread of no less than 8 ft., is constructed of round steel tubing, streamlined.



*The Woodson Sport five-seater, type 3-A (Hispano-Suiza 180 hp.)*

THE

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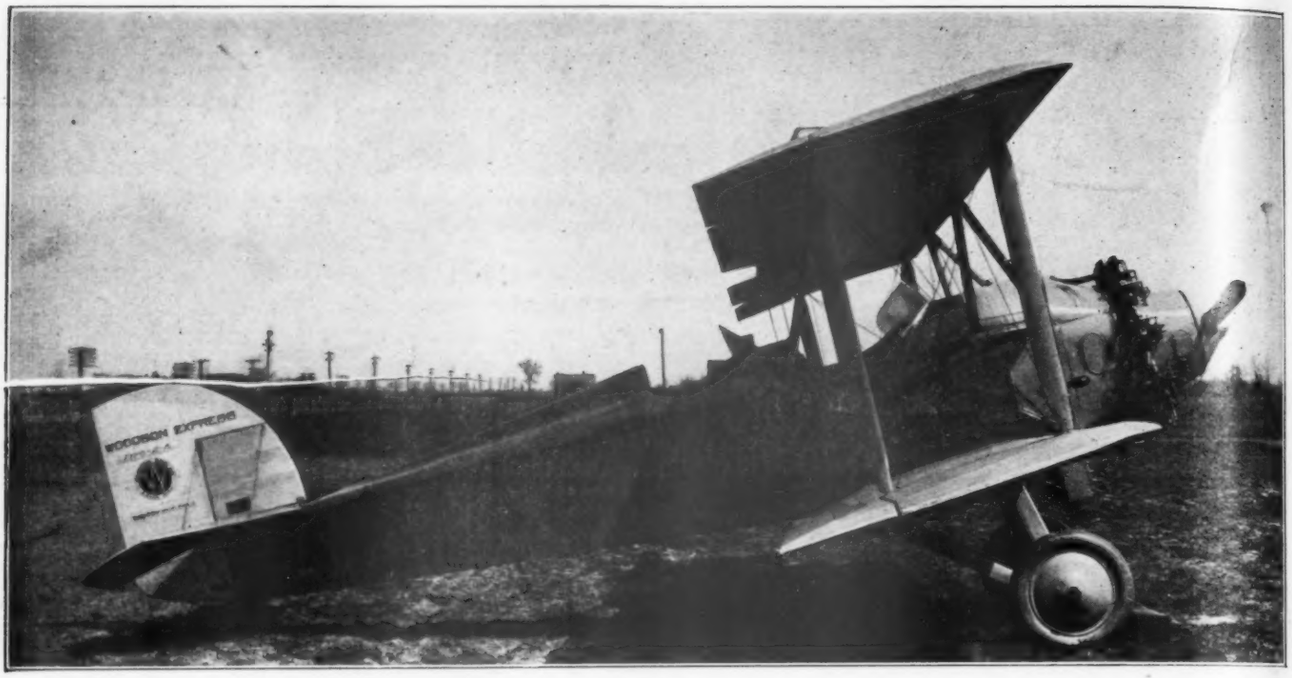


*The Woodson Express three-seater, type 2-A (water-cooled Salmson radial 230 hp.)*

It is of the divided axle type with one shock absorber of rubber chord wrapped in the center of the divided axle members. Wheels and tires are of 750 mm. x 125 mm. size. The tail skid is of the leaf spring type and can be removed from the stern post by removing two bolts.

## General Details

The general characteristics and dimensions of the Woodson Sport Type 3-A, together with the manufacturer's figures of performance are given in the following table:

| | |
|---|---|
| Span, both wings | 32 ft. 1 in. |
| Chord, both wings | 5 ft. 6 in. |
| Gap at center | 5 ft. 2 in. |
| Stagger | 18 in. |
| Incidence, both wings | 3 deg. |
| Dihedral, upper wing | none |
| Dihedral, lower wing | 3 deg. |
| Length, overall | 25 ft. 0 in. |
| Height, overall | 9 ft. 6 in. |
| Weight empty | 1450 lb. |
| Useful load | 1400 lb. |
| Pay load | 600 lb. |
| Gasoline | 510 lb. |
| Oil | 80 lb. |
| Water | 60 lb. |
| Pilot | 180 lb. |
| Weight loaded | 2880 lb. |
| Area of wings | 352 sq. ft. |
| Area of horizontal stabilizer | 20 sq. ft. |
| Area of elevators | 17 sq. ft. |
| Area of vertical fin | 3.4 sq. ft. |
| Area of rudder | 11 sq. ft. |
| Track of wheels | 8 ft. |
| Power (Salmson engine) | 230 hp. |
| Wing loading | 8.2 lb./sq. ft. |
| Power loading | 12.39 lb./hp. |
| PERFORMANCE | |
| With 230 hp. Salmson engine, full load: | |
| Maximum speed | 135 m.p.h. |
| Landing speed | 45 m.p.h. |
| With 150 hp. Hispano Suiza engine, pilot, 80 gal. gasoline, water, oil and two passengers: | |
| Maximum speed | 118 m.p.h. |
| Landing speed | 40 m.p.h. |
| With 180 hp. Hispano Suiza engine, pilot, 80 gal. gasoline, water, oil and four passengers: | |
| Maximum speed | 122 m.p.h. |
| Landing speed | 40 m.p.h. |

## The Woodson Express

The Woodson Express, Type 2-A, is another regular production model turned out by the Woodson Engineering Co. and is, in many respects, almost identical with the Woodson Sport, the overall dimensions of the two machines being almost the same. The fuselage of the Woodson Express is, however, of wood construction, spruce being employed throughout with a covering of 1/8 in. Haskelite waterproof plywood which is both screwed and glued to the frame structure. This type of construction makes a very beautiful job and is extremely serviceable and strong.

As in the Sport, there is no center section, the upper wings of the Express being joined at the center line and supported on a cabane of four struts sloping outward at an angle of 30 deg. The lower wings on each side are attached in the usual manner to the lower fuselage longerons. The bracing structure consists, as will be seen from the accompanying photographs, of a single interplane bay with double flying and single landing bracing wires. The wing structure is similar to that of the Sport and the internal bracing is carried out with double steel rods. At the fuselage on each side there is a strong veneer sidewalk 27 in. wide to facilitate getting in and out of the plane without damaging the wing structure itself. All aileron control wires are inside the wing structure.

## Fuselage Veneer Covered

As already mentioned, the fuselage is of spruce throughout and covered with 1/8 in. three-ply birch Haskelite veneer, glued with waterproof glue and screwed to the structure. This type of construction has been used for many years by the Air Mail Service and has been found to work out very well and is strong and robust, withstanding the severest weather conditions. It is almost impossible to crack Haskelite. The cockpits of the fuselage are large and roomy and are upholstered in leather. The pilot's cockpit, particularly, is very well planned and equipped with all necessary instruments arranged in the most suitable positions.

The tail unit is constructed entirely of spruce and veneer with metal horns for the operation of the rudder and elevators. The control wires are totally enclosed inside the fuselage. The stabilizer and vertical fin are each adjustable on the ground. As in the Sport plane, the rudder, which is of very large size, is adequately balanced.

The undercarriage is constructed of steel tubing streamlined with balsa wood and is very robust and strong. It is designed to incorporate shock absorption obtained from rubber cord which is wrapped in such a manner that, in the event of breakage, new cord can be wrapped very easily and in a few moments. The tail skid is of the leaf spring type and is equipped with a detachable shoe. Wheels are, as in the Sport, 750 mm. x 125 mm. The engine is the Salmson 230 hp. air-cooled radial.

# Consolidated Airplanes Wear Well

**Quality is first in their design and manufacture**
**Up-keep, ordinarily a serious problem is almost nil**

*Trade Mark* *Copyrighted*

**Only American manufacturers specializing in training airplanes**
**Five years continuous development on one basic design**
**Safest training and sportsmen's airplanes ever flown**

***Contractors to United States Army and Navy***

## CONSOLIDATED AIRCRAFT CORPORATION

**Buffalo, New York**

*When Writing to Advertisers, Please Mention AVIATION*

*Another view of the Woodson Express three-seater, type 2-A (Salmson 230 hp.)*

The finish is a combination of aluminum, a color—usually navy blue—and natural wood, all surfaces being treated with four coats of clear and two coats of aluminum pigmented dope and two coats of Valspar finish. All fittings are lacquered. The fuselage is finished natural wood with four coats of clear shellac and two coats of Valspar varnish. This combination makes a very beautiful looking job.

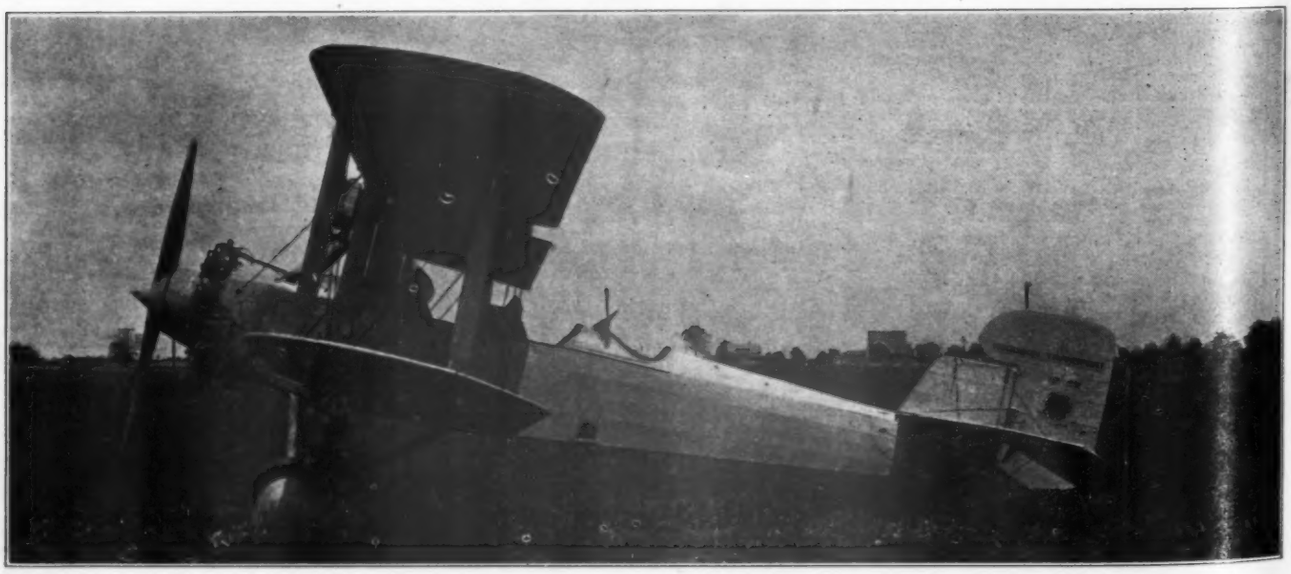
## Details and Performance

The general characteristics of the Woodson Express, together with the manufacturer's figures of performance, are as follows:

| | |
|---|---|
| Length, overall | 25 ft. 0 in. |
| Height, overall | 9 ft. 2 in. |
| Span, both wings | 32 ft. 1 in. |
| Chord, both wings | 5 ft. 6 in. |
| Gap at fuselage | 6 ft. 0 in. |
| Gap at wing tip | 5 ft. 1 in. |
| Stagger | none |
| Angle of incidence | 3 deg. |
| Sweep back | none |
| Dihedral, upper wing | none |
| Dihedral, lower wing | 3 deg. |
| Span of stabilizer | 10 ft. |
| Area of wings, including ailerons | 352 sq. ft. |
| Area of ailerons | 33 sq. ft. |
| Area of stabilizer | 20 sq. ft. |
| Area of rudder | 10 sq. ft. |
| Area of elevators | 17 sq. ft. |
| Track of wheels | 6 ft. |
| Wing loading | 7.1 lb./sq. ft. |
| Power loading | 12.1 lb./hp. |
| Gasoline capacity | 54 gal. |
| Oil capacity | 8 gal. |
| Cruising range | 350 miles |
| Weight, empty | 1590 lb. |
| Fuel | 415 lb. |
| Pilot | 180 lb. |
| Pay load | 600 lb. |
| Total weight, full load | 2785 lb. |
| PERFORMANCE | |
| Maximum speed, full load | 130 m.p.h. |
| Landing speed | 40 m.p.h. |
| Service ceiling | 18,000 ft. |
| Absolute ceiling | 20,000 ft. |
| Rate of climb, full load, | |
| 1,000 ft. | 0 min. 25 sec. |
| 2,000 ft. | 1 min. 0 sec. |
| 5,000 ft. | 3 min. 15 sec. |
| 10,000 ft. | 10 min. 0 sec. |

## Woodson Transport

Yet another plane produced by the Woodson Engineering Co. is the Woodson Transport, Type 4-B. This is a seven-place designed for passenger carrying and freight transport. It is a two bay biplane of normal design. The wings are of wood construction in standard Woodson manner with the fuselage and tail unit of tubular steel. The engine is again a 230 hp. air-cooled Salmson. This machine is not in regular production, but is manufactured to special orders.



*The Woodson Transport seven-seater, type 4-B (water-cooled Salmson radial 230 hp.)*

# THE NEW SUPPLEMENT

## *Contains Over 450 Illustrated Airplane Parts*

PAGE 15 OF OUR CATALOG

Listing instruments, dural sheets, dural tubes, dural rivets, screws and bolts, airplanes, motors, aluminum, sheets, tubing, rivets, pulleys, strainers, fittings, fabric and tapes and over

*A New Safety Belt for $3.00*

Fastens across lap or over shoulders or both. Prevents head from going forward—Positive lock yet releases instantly.

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## Johnson Airplane and Supply Company

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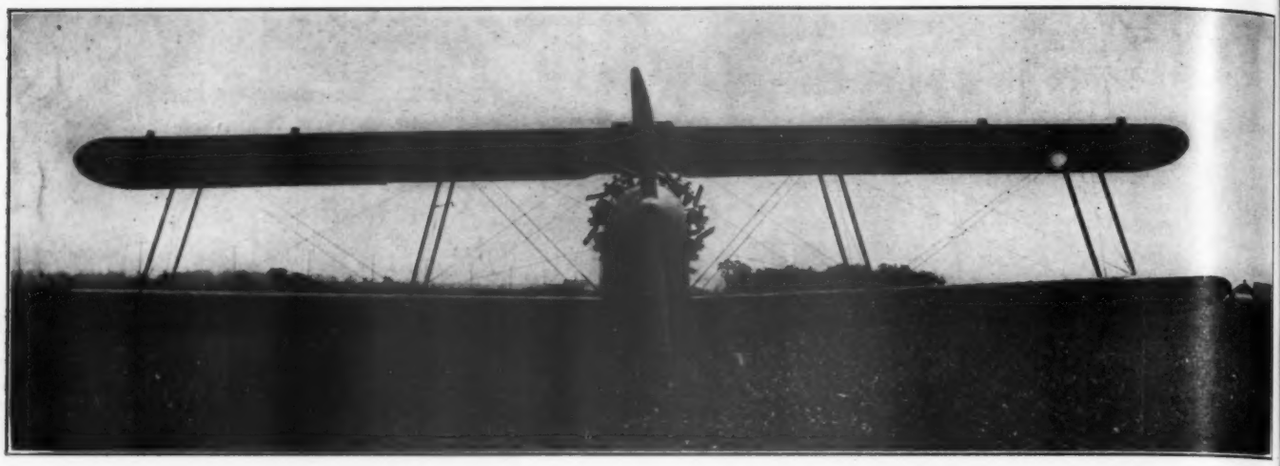
**DAYTON - OHIO**

***THE NATIONS AIR CENTER***



*The Woodson Transport, type 4-B (water-cooled Salmson radial 230 hp.)*

The general details of the Transport, together with the manufacturer's figures of performance, are as follows:

| | |
|---|---|
| Span, upper wing | 39 ft. |
| Span, lower wing | 42 ft. 6 in. |
| Gap at center | 6 ft. |
| Stagger | none |
| Incidence, both wings | 2½ deg. |
| Dihedral, upper wings | none |
| Dihedral, lower wings | 3 deg. |
| Length, overall | 28 ft. 6 in. |
| Height, overall | 10 ft. 2 in. |
| Weight empty | 1940 lb. |
| Useful load | 1620 lb. |
| Pay load | 1000 lb. |
| Weight loaded | 3560 lb. |
| Area of wings, including ailerons | 429 sq. ft. |
| Area of horizontal stabilizer | 38 sq. ft. |
| Area of elevators | 29.2 sq. ft. |
| Area of vertical fin | 5.9 sq. ft. |
| Area of rudder | 19 sq. ft. |
| Wing loading | 8.3 lb./sq. ft. |
| Power loading | 15 lb./hp. |
| Wing curve | R.A.F. 15 |
| PERFORMANCE | |
| Maximum speed, full load | 110 m.p.h. |
| Landing speed | 35 m.p.h. |
| Maximum speed at 10,000 ft. | 100 m.p.h. |
| Maximum speed at 15,000 ft. | 90 m.p.h. |
| Rate of climb at sea level | 1000 ft./min. |
| Endurance at cruising speed | 5 hr. |

## The Heath Tomboy

The Heath Airplane Company, Inc., of Chicago, Ill., has just decided to name their little sport monoplane with the Cherub engine the "Tomboy". The machine was described in the Aug. 23 issue of AVIATION and, from the performance and the beautiful features of the little plane, it would seem that the new name could not have been more appropriately selected.

The Heath Tomboy has been entered in the three lightplane races at the National Air Races at Philadelphia and has been designated No. 16. There would seem little doubt that the plane will put up a good show for itself and its performance will be watched with much interest.

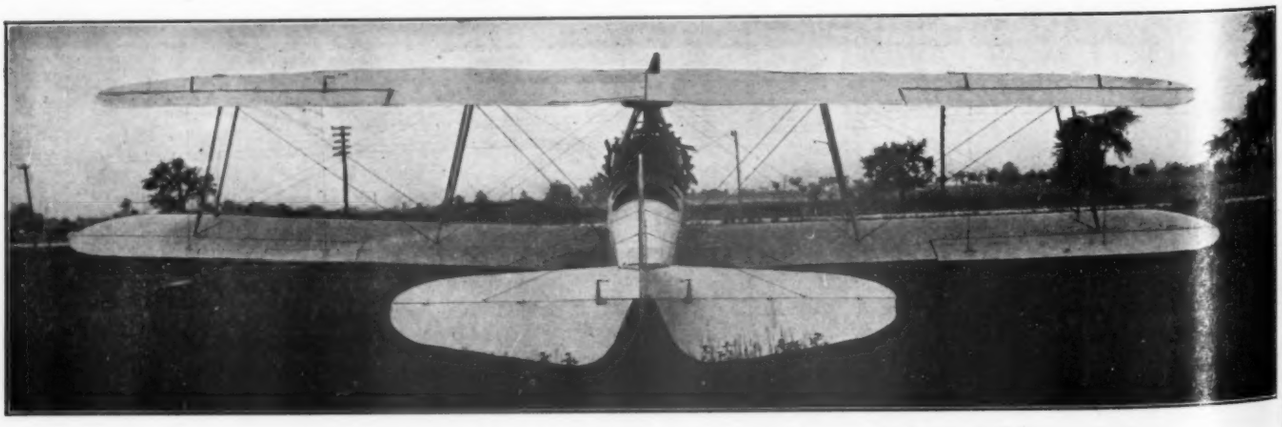
## Magnetos Shown in Wrong Position

Apology is due the Scintilla Magneto Co., Inc. of Sidney, N. Y. for the way an engine cut was inserted in their advertisement appearing in the August 23 issue of AVIATION. The advertisement referred to the latest Fairchild-Caminez engine and mentioned that by using the smaller type AP 4 Scintilla aircraft magnetos, the Fairchild-Caminez Co. had obtained a saving of eight pounds four ounces in the weight of the ignition over the first engine. The smaller size of the magnetos, it was pointed out, made it possible to tuck them away within the circle of the mounting flange.

However, in looking at the illustration of the Fairchild-Caminez engine which appeared in the advertisement, the reader would be mystified by seeing the two magnetos in a vertical instead of their correct horizontal plane, due to the cut being turned by the pressman, who removed it from the form to back up the cut and placed it back in a turned position. In this issue the same advertisement appears with the engine cut in its proper position.

## Mexico Lifts Embargo on Aircraft

The Treasury Dept. has informed collectors of customs that the embargo on the exportation of non-military aircraft from the United States to Mexico has been raised by the latter government. Such shipments, without license, across the border can now be resumed. Aircraft of military type are not included in this modification, a license for the export of this class still being required. The reason given for the modification was that no further necessity for the embargo existed.



*A rear view of the Woodson Transport, type 4-B (Salmson 230 hp.)*

## Linking the Orient to Europe

The organization in the near future of an air line that will link London and Paris with North Africa, the Middle East and India, is forecast by the absorption of the French Compagnie Aéronavale by the Air Union. The Compagnie Aéronavale has, for several years, been running a flying boat service between the South of France and the Island of Corsica, and has also investigated a possible extension of this line to Tunis. Experimental flights have already taken place on the latter route which is considered by the French air authorities as a step toward an air line to Egypt.

Now that the assets of the Compagnie Aéronavale have been taken over by the Air Union, which already is running a London-Paris-Lyon-Marseille line, the extension of the service to Tunis will soon become a reality. The large experience which the Air Union has gathered on its cross channel service and the powerful financial backing the company receives, both from the French Government and from the Chambers of Commerce at Lyon and Marseille, makes it seem certain that travelers will be able to fly with safety and comfort from London to North Africa before long.

When the ultimate extension of this line from Tunis to Egypt is realized, it will be possible to travel by air from London to India, for, as is well known, the Imperial Airways expect to open an air line from Cairo to Bagdad and Karachi, India, in 1927. The saving in time insured by air transport will amount to about two weeks.

## McIlhiney Joins Publicity Firm

Donald W. McIlhiney, former editor of AVIATION magazine and a pilot in the U. S. Army Air Corps Reserve, has joined the executive staff of H. A. Bruno, R. R. Blythe and Associates, public relations counsel, specializing in aeronautics, of New York and Cleveland.

Mr. McIlhiney will be in charge of the technical information department. He is an expert on aeronautical research and several years ago was connected with the Curtiss Aeroplane and Motor Co. in wind tunnel research. A graduate of Columbia University, Mr. McIlhiney is the author of many technical and popular articles dealing with all phases of aviation.

Underwood & Underwood

*Capt. Emory S. Land, U. S. N., who has recently been appointed Assistant Chief of the Bureau of Aeronautics, Navy Department. Captain Land, who takes the place of Commander Rodgers in the Bureau of Aeronautics, was formerly Chief, Materials Division of the Bureau of Aeronautics.*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## $100 — Including Solo

*No bond required*
*No charge for breakage*

**76 Students Graduated in 1925**

**Eight years without an accident**

*Room and board near field at $10.00 per week.*

We guarantee to solo our students regardless of the number of flying hours required. We also furnish planes at very reasonable rates for those who wish to qualify for the F.A.I. pilots certificate and we maintain an employment agency for our graduate pilots.

The flying school of the Robertson Aircraft Corporation is one of the oldest and best known in the United States. Our instructors are ex-army aviators and are mail pilots with wide experience and our training equipment is the best obtainable. In over eight years of operation our students have never damaged a ship in their solo flights.

The flying field is approximately six miles from St. Louis and is easily accessible by railroad, street car and hard surfaced roads. It is the largest and best privately owned field in the country and the International Races of 1923 were held there. Mail planes arrive and leave daily.

Our course requires about two weeks, depending on the individual, and after its completion the refinements of the art can be gained only from experience. Commercial aviation is a rapidly growing industry. Don't delay! Enroll now!

It is not necessary to purchase an airplane in order to take this course.

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***Guaranteed Condition Airplanes, Ready for Immediate Fly-Away Delivery, at Prices Ranging from $650.00 to $1,750.00***

## ROBERTSON AIRCRAFT CORPORATION

OPERATORS OF ST. LOUIS-CHICAGO UNITED STATES AIR MAIL

**LAMBERT-ST. LOUIS FLYING FIELD, ANGLUM, MO.**

## Side Slips

By ROBERT R. OSBORN

The newspapers quote the King of England as being very much displeased with the shortness of the dresses worn at some recent horse races in England. The reporters of this news also noted that, as a result of his criticism, the dresses were quite noticeably longer on succeeding days. This reminds us that we overheard quite a bit of complaint among men at the National Air Races last year, that the short skirts then prevailing were interfering with their views of the races also. We hope that this note will be in time for those who have this year's races in charge to do something about this matter, so that there will be fewer cases of vertically crossed eyes among the male spectators afterward.

* * *

There is another little matter which the directors of the coming air races should investigate, too. W.H.M. reports that he saw a very prominent civilian pilot, who has been winning races of all sorts for years, among them the Merchants Association of New York Trophy Race last year, trying to camouflage a Curtiss V-1400 engine with OX-5 rocker arms and push rods.

* * *

Our friend, The Intrepid Aviator, says he was going to enter the On-to-the-Sesqui race but changed his mind when someone informed him that he would have to win the trophy at three successive centenniai expositions in order to get permanent possession.

The news that Louis Bleriot had flown across the English Channel for the second time, seventeen years after he made the first flight across that water, is interesting in that it can be compared with Miss Ederle's recent successful attempt to swim the same barrier. In considering the number of swimmers who have been able to cross the Channel, the first flight across does not seem much of an accomplishment, unless we remember that anyone doing Channel flying in those days had to be a pretty good swimmer too.

* * *

F.A.W. writes in to inquire about the recent wedding held in an airplane flying over New York City. He wants to know if the bride was making good on some previous declaration that she "wouldn't marry the best man on earth". Not knowing either of the participants in this wedding we cannot answer the inquiry,—in fact, we'd like to ask a question ourself. Did the plane follow the time-honored custom by throwing a couple of shoes from the landing gear, right after the ceremony?

As it was the first trip aloft for the officiating minister at this wedding, our bet is that most of his thoughts were to the effect that he could not see why the bridegroom had to tempt fate in so many different ways at the same time.

* * *

"Tex" Rickard, the promoter of the coming Dempsey-Tunney championship fight, objected seriously when Tunney proposed to fly with an Army flier friend of his up to the training camp, finally refusing to permit him to make the trip that way. Opinions seem to differ as to what is, and is not dangerous. Personally, we'd much prefer to make the same cross-country trip several hundred times than to step in the same ring with Dempsey just once.


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*"The Plane That Pays A Profit"*

# AIRPORTS AND AIRWAYS

## New England News

By Porter Adams

On Saturday Aug. 14, the 26th Division Air Service, Massachusetts National Guard, departed for two week's duty at Langley Field, Virginia, under the command of Maj. Charles H. Wooley, while a number of the reserve Army pilots are at Mitchel Field for two weeks. In spite of these things, there is considerable activity at the Air Port. During the week Aug. 9-15, the Army flew slightly over 27 hr. while at the Naval Reserve Air Station at Squantum they piled up nearly 100 hr.

The $10,000 recently appropriated by the Boston City Council has now been made available and work is expected to commence at the Airport soon. This money is to be used in levelling and gravelling the rough spots and it is hoped that next year will see an appropriation which will enable the suitable levelling and filling of the entire area.

Lieut. W. C. White flew into Boston on Aug. 11 in a Douglas from Mitchel Field and continued on to Bangor, Me., while Major Gilkinson came up from Edgewood Arsenal with Colonel Eaton as passenger and returned the same afternoon.

On Thursday, Aug. 12, Lieutenant Champion flew from Washington to Hartford in a Boeing equipped with the new Pratt and Whitney Wasp engine. He expected to return to Washington within a day or two.

Announcement has been made that Capt. A. Raymond Brooks Framingham, Mass., has been designated by Assistant Secretary MacCracken to make a survey of the lighting requirements for the Boston-New York air route. Brooks is a World War ace and previous to this assignment has been doing splendid work with the development of aviation in the south.

Gertrude Ederle is reported to have said as she finished her channel swim that her idea of heaven would be to get into hot water for a year. Why doesn't someone nominate her for president of the N.A.A.?

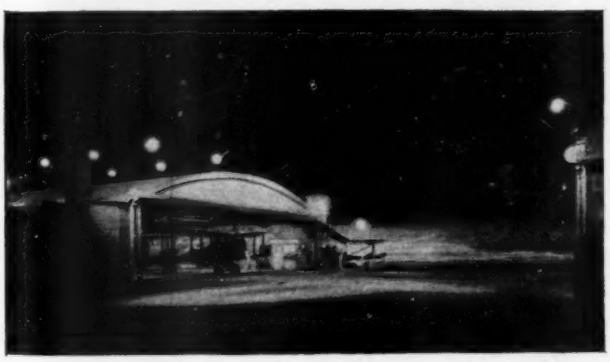
## Atlantic City, N. J.

J. W. Green, a chief petty officer on the U.S.S. Concord and Patrick Byrne, pilot, from the Naval Air Station, Hampton Roads, flew from Hampton Roads to Atlantic City, a distance of 400 miles in 3 hr. Green came to the resort to spend his vacation and was given the use of the plane to make an unofficial report to the Navy Department on landing conditions at the airport. No trouble was encountered in landing and Byrne took the plane to Lakehurst, from which place he will return with it to the U.S.S. Concord.

## Cincinnati, O.

By R. Alvin Hug

The planes competing in the Airplane Reliability Tour arrived in Cincinnati at noon on Aug. 18. With two exceptions, all the planes landed at Lunken Airport between 12 and 12:30. The exceptions were Jack Laass in a Driggs Dart who arrived about the middle of the afternoon, and R. Hossler in a Woodson who reached the airport at 8:20 p. m. in the evening.

Light your Airport

Lighting Equipment for Airports and Airways

Beacons
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*Your* airport will be fully equipped for commercial aviation only when it is correctly lighted for night flying. G-E Aviation Lighting Specialists will help you select a lighting system that will aid in establishing your airport as a commercial center.

*For information address the G-E Aviation Lighting Specialist at Schenectady or at your local G-E Sales Office*

711-3

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL PRINCIPAL CITIES

4-22-26

Despite the rainy weather and the muddy field, a large crowd visited the airport during the evening and inspected the planes, showing that the Cincinnatians are fast becoming "air-wise". The center of interest was the large triple-engine Ford monoplane and more than one person was surprised at its size. The Driggs Dart, safely sheltered under the big right wing of the Ford plane, also received a great deal of attention. The Waco No. 26 was the only plane from this city in the tour. It was piloted by John Paul Riddle, junior member of the Embry-Riddle Company, distributors of the Waco for Ohio and Kentucky, and carried as a passenger Mrs. Susan H. Embry, mother of T. Higbee Embry. Riddle was in 6th place when the planes passed through here, while Walter Beach in a Travel Air and Louis G. Meister in a Buhl-Verville, were leading. The planes left Thursday noon for Cleveland.

Sergt. P. E. DeWeese has returned to the Watson Airport Company, Blue Ash, after a short absence and is again thrilling the crowds with his parachute jumps. DeWeese was formerly connected with the Army Air Service at Dayton, O., and knowing, as he does, parachute jumping from A to Z, he is very popular with followers of aerial aerobatics in this vicinity.

The Dixie Flight Co., whose field is located between Hamilton and Cincinnati, has been doing a good business throughout the Summer. Parachute jumps and air circuses have been features at this field from time to time. Of late the charge for passenger carrying has been 2 cents per pound. This system of charging for aerial joy-rides has also been used by Dixie Davis, who manages the Dixie Davis Flying Field on Union Levee, with considerable success. Other companies with a fixed rate usually charge $3.00 per passenger.

One of the prizes being offered by the Cincinnati *Times-Star* in its Greater Movie Season contest is a thirty minute airplane ride for two persons over the city. The Embry-Riddle will give the two lucky individuals their aerial jaunt in one of their Wacos.

## Denver, Col.

W. C. Sievert of the Sievert Aircraft Corporation has taken delivery of his first Alexander Eaglerock demonstrator. His Corporation has taken over the exclusive sale of Alexander Eaglerocks for Illinois with headquarters in Chicago.

D. M. Alexander, vice-president and production manager of the Alexander Aircraft Co., Draukman, engineer, and Max Short who has been making a stress analysis of the Eaglerock, flew to Wichita to meet the Reliability Tour, returning later. They had a very enjoyable trip.

From Detroit the Eaglerock in the Tour, piloted by Rolando, accompanied by M. J. McInaney, will go to Philadelphia for the National Air Meet.

## Pitcairn Field, Pa.

The new Pitcairn Field, on the Easton Road near Willow Grove, Pa., is proving to be just about all that can be asked, either by its operators, the public, or visiting pilots. From a pilot's point of view it is admirable, with its large acreage and long runways, and its full equipment of shops and crew. The public like it, as is testified by the fact that over 600 passengers are carried there every week, and a good Sunday sees from five to ten thousand people on the field.

During the Summer months, the experiment was tried of "Sundown Shows" to attract more people during the week and even up the "load". The experiment has not been a complete success. The people came alright, but passenger traffic actually dropped off. The visitors stayed around to wait for the entertainment, and declined to patronize the planes themselves. Experience shows that nothing encourages air travel like the sight of others enjoying it, and it is certain that a busy field is its own best advertisement.

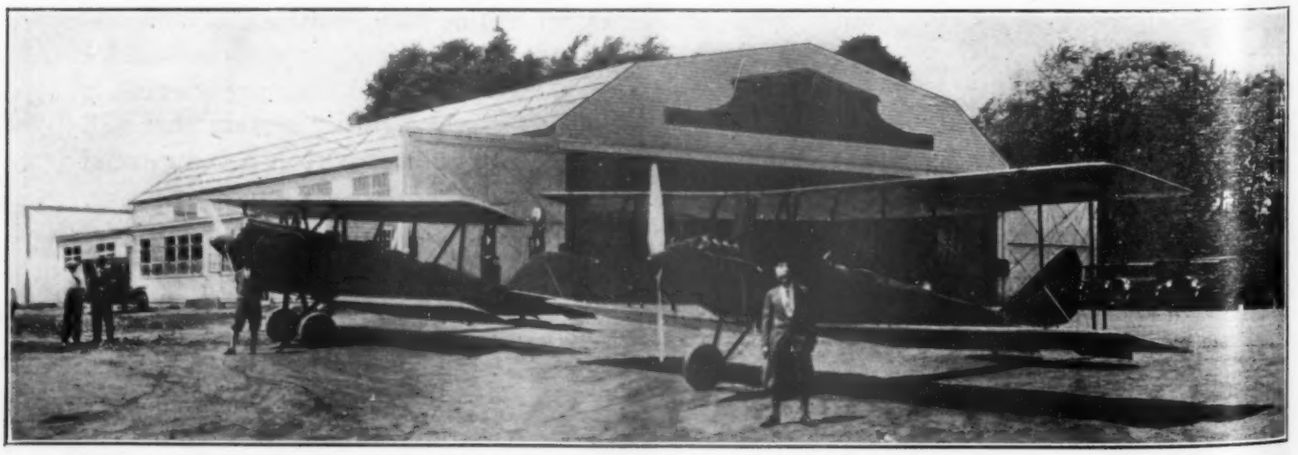
The field has been unusually taxed lately by the demand for Pitcairn machines in other places. Pilot "Ray" Rafus has one of the Pitcairn Orowing planes at Ocean City, where he is carrying passengers from the beach. Pilot Kerr is operating at the Sesqui-Centennial, and busy days usually call for two planes there. Finally, Harold Pitcairn, President of Pitcairn

*James G. Ray, Director of flying at Pitcairn Field, Phila., Pa. and Harold F. Pitcairn, President of Pitcarin Aviation, Inc.*

Aviation, and his operation's manager, James G. Ray, are away on the Ford Reliability Tour, flying respectively, an Orowing and a Fleetwing. In their absence, Ben Faulkner is in charge of operations at Pitcairn Field.

Orowing is the official title for the new Pitcairn plane, originally called the P.A.3. It is an OX job, and has shown unusually good flying qualities; the pilots make no secret of their preference for it. Unofficially, the two Orowings now in operation have been christened at the field as "Josephus" and "Bohunkus".

Other types in use at the field are the four passenger Fleetwings, Wacos, Orioles, Standards, and the ubiquitous Jenny.



*At Pitcairn Field, Philadelphia, Pa. The Pitcairn Fleetwing (Curtiss C-6) on the left, and the Orowing (Curtiss OX-5)*

# B. B. T.

LIGHTING EQUIPMENT

USED AT THE NIGHT AIR CIRCUS OF THE

CATALOG OF FLOODLIGHTS AND BEACONS WILL BE GLADLY FORWARDED

B.B.T. CORPORATION OF AMERICA

ATLANTIC BUILDING PHILADELPHIA PENNA.

See Our "Flying Showcase" at the Races

PHILADELPHIA

SEPT. 4 - 11, 1926

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## *Planes and Parts*

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I AM NOW able to offer to engineers, designers and manufacturers a line of special patented duralumin stampings, and drawn parts to meet their individual requirements, such as pulley housings, fairing sections, metal seats, floors, control columns, pedals, interplane and drag struts.

A FAIR licensing plan under which a manufacturer may himself produce special parts under my patents is also available.

MY EXPERIENCE and complete engineering—manufacturing facilities are now offered for either or both the design or construction of complete all metal airplanes and seaplanes for special military, or commercial purposes.

*Contractor to the U.S. Navy*

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# Perry-Austen

## COMMERCIAL

Acetate Nitrate **DOPES** Clear Pigmented

**No. 21 Pigmented Eggshell Finish-Nitrate Spray or Brush 2 coats over clear Acetate or Nitrate. Fuselages and wings. Lustrous AUTOMOBILE-like finish. Very attractive, smooth and easy to keep clean.**

**Perry - Austen Mfg. Co. - Staten Island - N. Y.**

Contractors to United States Government

**AIRPLANES FLYING BOATS MOTORS SUPPLIES.**
Dandy newly linen covered Oriole less motor $1375. New JN4D airplane $1350. Splendid used JN4D $1075.; 220 Hispano motored new Standard $1500. New Liberty Motor $1650. New 80 H.P. LeRhone $125.; new 28 H.P. 2 Cyl. Lawrance $142.50. JN4D or Canuck upper or lower or Standard lower wing $90.; Standard upper wing $110. Metal or bamboo wing skid for Canuck or JN4D $1.50; bamboo for Standard $2. Cotton or linen covers all made up for any surface of Canuck, JN4D or Standard. Gov't specification cotton airplane cloth 65c yd. or 65 yds. or more at 57½c; Gov't spec. scalloped cotton tape 6c yd. or 110 yd. rolls at 5½c yd.; ordinary 2½" cotton scalloped tape 4c yd. or 110 yd. rolls at 3½c yd.; linen 80c yd. or 65 yds. or more at 70c yd.; linen scalloped tape 8½c yd. 5 gals. dandy fresh nitrate dope $10. or 50 gal. barrels $80.: good acetate dope 5 gals. $9. or 25 gals. or more at $1.50 per gal. Rotary Map cases—rotate as trip progresses—$3.50; dandy compasses $15.; 120 lb. oil gauge $2.50; dandy water or oil temperature gauges (thermometers) with tubing $7.50; climb or banking indicator $2.50, or illuminated type, $4.50; fore and aft inclinometer $7.50—these are dandies. New fresh ⅜" shock absorber cord 45c yd.; ½" 55c yd.; ⅝" 80c yd.; striped ½" 37½c yd.; new 26 x 4 casing $10.; slightly used $7.50; moderately used $5.; new 26 x 4 tube $2.50; 20 x 4 casing, slightly damaged $10.; 20 x 4 wheel $5.; 20 x 4 tube $3. for fresh or $1.75 for war surplus; 750 x 125 wheel $8.50; 750 x 125 casing $10. for good ones, or $7.50 for passable; new fresh tube $4.; adapters for adapting DH wheels to Standard, JN4D or Canuck $7.50.
**FLOYD J. LOGAN AIRPLANE CO.**
716 W. SUPERIOR *Phone Cherry 949* CLEVELAND, OHIO.

# United States Air Forces

## A Parachute Jump from 15,000 ft.

A parachute jump at an altitude of 15,000 ft. was made recently by Corp. George W. Wehling, of the 44th Observation Squadron, stationed at Fort Sill, Okla. Corporal Wehling landed safely on level ground about three miles from Lawton, Okla. The plane was piloted by Lieut. C. W. Cousland.

The parachute opened soon after the jump was made and when about 3,000 ft. above ground, Corporal Wehling released the reserve 'chute, which opened perfectly.

## Squadron Flies 35,400 miles

Officers and enlisted men of the 88th Squadron, Air Corps, and the 7th Photo Section, Army Air Corps, stationed at Fairfield, Ohio, flew a total of 35,400 cross-country "man" miles during the period from Jan. 1 to June 30, 1926, the Dept. of War has been informed.

## Training Camps for Anti-Aircraft Organizations

It is expected in the near future that Col. J. B. Mitchell, C.A.C., on duty in the office of the Chief of Coast Artillery, and Maj. Charles O. Schudt, C.A.C., on duty with the Militia Bureau, will visit various sites in New England for the purpose of making recommendations as to the future training camps for anti-aircraft organizations of the National Guard and Organized Reserves. The requirements of this service make the selection of a proper range a very important matter, since both the range and the width of the field of fire covered by the guns of this service are in excess of that normally required for land artillery. Consideration must also be given to the necessity of suitable day and night landing fields for aircraft to serve the range.

## Assistant Secretary Davison on Inspection Trip

Assistant Secretary F. Trubee Davison, of the Department of War, who is in charge of air activities of the Army, left Washington on Aug. 10 for an inspection of the Army air fields. He was accompanied by Brig. Gen. William E. Gilmore and Capt. Robert Walsh, both of the Air Corps, and was joined by Brig. Gen. James E. Fechet and Capt. I. H. Edwards of the Air Corps, who flew to McCook Field, Dayton, O.

The Assistant Secretary's party used air transportation after reaching McCook Field.

The tentative itinerary is as follows: McCook Field, Dayton, Ohio, Aug. 11 and 12; Scott Field, Belleville, Ill., Aug. 13; Air Corps Technical School, Rantoul, Ill., Aug. 14; Norton Field, Columbus, Ohio, Aug. 14 and 15; Selfridge Field, Mt. Clemens, Mich., Aug. 16; return to McCook Field, Aug. 16; return to Washington, Aug. 17.

## Army Meteorological Stations

Over twenty Army meteorological stations are now maintained by the Signal Corps of the Army, primarily for the Air Corps, but the information is available also to the Navy, Air Mail, and civilian fliers. In addition to the observation of surface weather conditions, special attention is given to the determination of the speed and direction of the winds at high altitudes and measurements of the ceiling of the clouds. Forecasts are furnished in cooperation with the Weather Bureau. The report of each meteorological station is condensed in code form and disseminated by radio to other flying fields.

The personnel of these stations consists of enlisted men of the Army Signal Corps and of radio operators trained in the


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| Pay load | 800 lbs. | Pay load | 700 lbs. |
| With Wright J-4, | | With OX-5, | |
| Maximum speed | 130 M.P.H. | Maximum speed | 90 M.P.H. |
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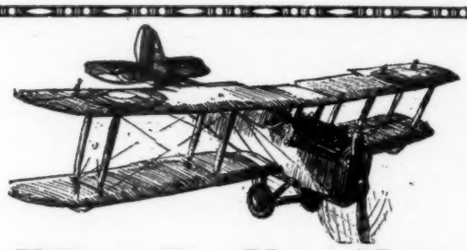

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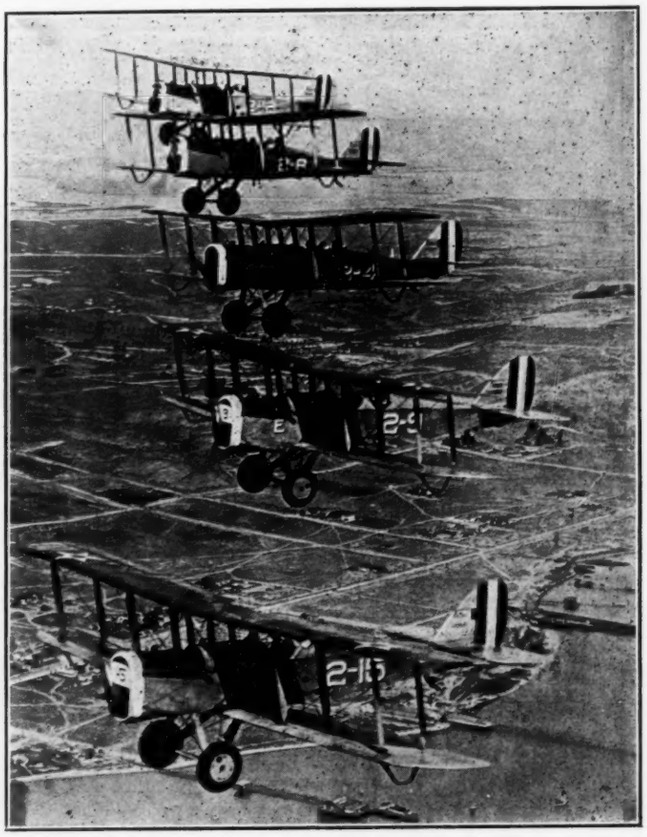
Army's Meteorological School and Radio Schools. The equipment includes Army radio and meteorological observation instruments. The stations now in operation are as follows:

Aberdeen Proving Ground, Md.; Bolling Field, D. C.; Burgess Field, Pa.; Chanute Field, Ill.; Edgewood Arsenal, Md.; Fort Bragg, N. C.; Fort Bliss, Tex.; Fort Eustie, Va.; Fort Leavenworth, Kans.; Fort Monmouth, N. J.; Fort Sill, Okla.; Hatbox Field, Muskogee, Okla.; Schofield Barracks, H. T.; Kelly Field, Tex.; Langin Field, Moundsville, W. Va.; Langley Field, Va.; Love Field, Dallas, Tex.; Maxwell Field, Montgomery Ala.; Mitchel Field, L. I., N. Y.; Camp Nichols, P. I.; Selfridge Field, Mt. Clemens, Mich.; Scott Field, Belleville, Ill.; Wilbur Wright Field, Fairfield, Ohio.



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*Navy DH-4's in eschelone formation*

## Navy Aerial Survey Expedition

A report received from the Navy Aerial Survey Expedition, operating in Alaska, states that a large lake, locally known as Lake Grace, has been shown by the photographic work to hold excellent possibilities for the development of great water power. It was to obtain such information about this heretofore nearly inaccessible country that the Navy Expedition was sent to Alaska to cooperate with the Department of Interior.

In three days the expedition has mapped fifteen islands and Cleveland peninsula, as well as a part of another large island. Two daily flights are made by two planes working together. By this means a territory is mapped in a few days that would take years of work by the old methods of surveying. In addition a continuous photograph is obtained of the land which is invaluable as compared to the topographic charts and occasional photographs produced after the tedious surveys working through the forests and over the mountains.

## Army Air Orders

Following officers of the Air Corps Res., to active duty, from places named, to Brooks Field, reverting to inactive status Mar. 11: Sec. Lieuts. Allan Ashley Barrie, Hammonton, Calif., Thurston H. Baxter, Jerseyville, Ill., Robert Henry

Lieut. Doolittle, with Lap Pack type; Lieut. Brookley, with Seat Pack type — IRVIN Air Chutes.

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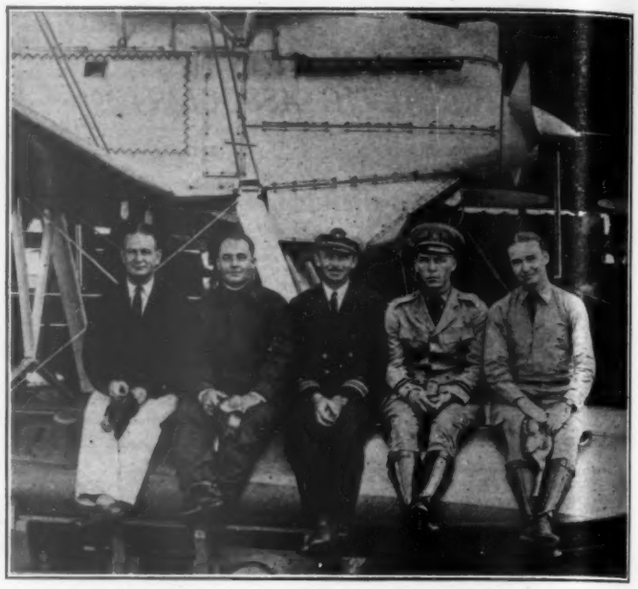

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*The United States Schneider Cup team. Left to right, Lieut. F. H. Conant; Lieut. H. J. Norton; Lieut. Comdr. Homer C. Wick, in charge of team; Lieut. G. T. Cuddihy, Lieut. W. G. Tomlinson.*

Berg, San Francisco, Charles Stark Draper, Palo Alto, Calif., John Alexander Kerr, Pasadena, Arthur Edward Larratt, Billerica, Mass., Walter Paul Piehl, Evanston, Ill., William Haviland Taylor, Newtonville, Mass., Carl Frederick Theisen, Meriden, Conn., Frederick Edward Walch, Jr., Watertown, Mass., Ernest Keeling Warburton, Brighton, Mass.

Sec. Lieuts. George J. Eppright, Manor, Tex., Lon Cartright Ingram, Jr., Terrell, Tex., and Charles Wesley Johnson, Amarillo, Tex., Air Corps Res., to active duty Brooks Field, reverting to inactive status Mar. 10.

Sec. Lieut. Frank Bailey Stuart, Air Corps Res., San Antonio, to active duty Brooks Field, reverting to inactive status Mar. 12.

Sec. Lieut. Walter Bernard Whisenand, Air Corps Res., Urbana, Ill., to active duty Brooks Field, reverting to inactive status Mar. 9.

First Lieut. Harry A. Sutton, Air Corps, Mass. Inst. Tech., Cambridge, effective upon completion of temp. duty Boston, to McCook Field.

Brig. Gen. Frank P. Lahm, asst. Ch. Air. Corps, San Francisco, to San Antonio.

### Navy Air Orders

Comdr. William A. Maguire det. Airef. Sqdns., Battle Flt., to Navy Yard, New York.

Ch. Bos'n. George R. Groh det. Airef. Sqdns., Battle Flt., to U.S.S. Saratoga.

Lieut. Samuel H. Arthur det. Airef. Sqdns., Battle Flt., to Nav. Air Sta., Pensacola.

Lieut. (jg) Roy M. Signer det. Airef. Sqdns., Battle Flt., to Nav. Air Sta., Pensacola.

Lieut. Robert W. Thomas to continue duty Nav. A. Sta., San Diego; orders June 24 revoked.

Ens. William A. Fly det. Nav. A. Sta., Pensacola, to U.S.S. Texas.

Lieut. Comdr. Robert S. Chew det. Nav. Airef. Fact., Navy Yard, Phila., to U.S.S. Arkansas.

Lieut. Comdr. Virgil C. Griffin det. Nav. A. Sta., Pensacola, to U.S.S. Lexington.

Lieut. (jg) Rhea S. Taylor det. Nav. A. Sta., Pearl Harbor, to duty with battleship or light cruiser detachment.

Lieut. Thomas L. Sprague det. Nav. Air Sta., Pensacola, to Airef. Sqdns., Battle Flt.

Ens. Harrison B. Southworth det. Rec. Ship, New York, to temp. duty Nav. Air Sta., Pensacola.

Ens. John W. King to duty VT Sqd. 2, Airef. Sqds., Battle Flt.

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# PUBLISHER'S NEWS LETTER

Whatever results have been accomplished with disarmament in other fields the onrushing ascendency of air power is the most important and evident tendency in practically every country of the world. Armed aircraft have now become The First Line of Attack and this characterization will become a slogan that the people of each country will regard as self-evident. The United States is fortunate in its isolated position. The natural barriers that protect it for the moment against invading aircraft give it an opportunity to make plans more deliberately than countries which are open to air attack without several thousand miles of flying.

* * * *

Europe is fast becoming an armed aviation camp. The leading aircraft factories are turning out highly specialized aircraft in large quantities for home and foreign use. The difficult financial situation is the only obstacle to the evident desire of every country to make its defense secure by a strong aerial offense. Aviation fields with complete hangar equipment are either available at all large centers or being constructed. While military and naval development are proceeding along the old lines, aviation is forging ahead, far in advance of what is generally believed. The relationship of foreign air transport to aerial defense and offense is a very difficult problem. Just how much of the equipment might be used for war purposes is debatable, but there is no question about the utility of civil aviation airports and personnel in time of trouble.

* * * *

The competitive element which always enters into all military and naval problems is more acute in Europe than in the United States. There, the independent action of aerial forces in advance of military or naval operations is creating a very powerful public opinion which is relying on air power to accomplish very definite missions of attack or protection. The service function is subordinate. This appears to be the great distinction between the European conception of aircraft in war and the American. Here, the public has been indoctrinated with the service idea and this has been possible because the danger from immediate aerial attack is lacking. It is this freedom from bothersome neighbors that has given rise to so much confusion in the public mind. Reliance has been placed on men who from their training and experience are credited with a knowledge of the defensive and offensive needs of the country. In Europe, the public is listening more and more to the spokesmen for air power. England, France and Italy have men whom the public regard as experts in aerial development. Their opinions are given precedence when the air protection of the country is discussed.

* * * *

It is to be hoped that the new Assistant Secretaries for Aviation will become the leaders in moulding public opinion. Their opportunity comes at one of the most critical times in history. The public has waited patiently for a national aircraft policy. A program for equipment is the first step, the hearings that have been held offer the facts from which conclusions can be drawn. If the three men who have been entrusted with a national problem of the first magnitude utilize their positions to crystalize a national sentiment for a progressive and farseeing development of air power, they will receive the everlasting gratitude of airmen and the distinction which will rightfully be theirs.—L.D.G.

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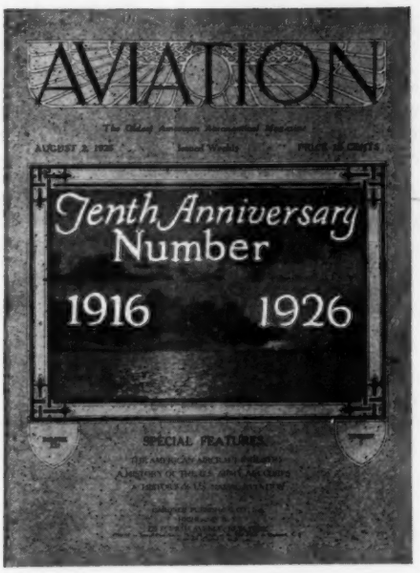


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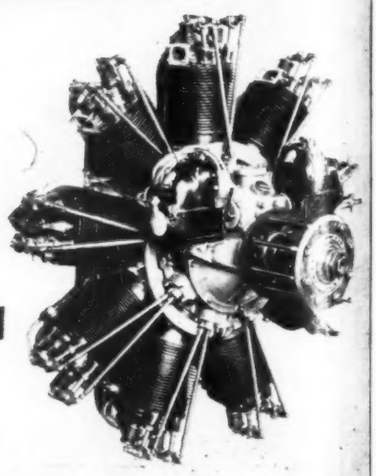

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